CHAINTECH
COMPUTER CO., LTD.

CHAINTECH

5TTM
User's Manual

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100% POST-CONSUMER RECYCLED PAPER

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PART I English Edition

Chapter 1

Introduction

1-1 Product Specifications:

❒ **CPU**

- Supports up to 200MHz Pentium® processors and up to 233MHz Pentium® processors with MMX™ technology
- Supports Cyrix/IBM 6x86™ (processor rev. 2.7 or later) and 6x86L™ PR120⁺ ~ PR166⁺ processors
- Supports AMD-K5™ PR75 ~ PR166 processors
- Supports 55/60/66/75 MHz system clock speeds
- 321-pin ZIF Socket 7
- High efficiency Switching Power module
- Innovative *SeePU* Technology (Simple CPU installation via BIOS)
- CPU overheat protection via *APTC* (Active Process Temperature Control) technology

   ⮞ Pentium processors with MMX technology are the the first Intel processors to include a new instruction set that accelerate Multi-media and communication applications.

   ⚠ Supports 75MHz for specialized OEM requirements

❒ **Main Memory**

- Four 72-Pin SIMM sockets (4/8/16/32MB, 32/36-bit, 70-ns(or faster), 5V SIMM acceptable)
- Two 3.3V 168-pin DIMM sockets
- Support Synchronous/EDO/FPM DRAM
- Maximum 256MB on board

❒ **Cache Memory**

- 512KB (64k*32x2) Pipelined Burst SRAM on board

❒ **I/O Slots**
  - Four 16-bit ISA slots
  - Four 32-bit PCI slots (all are Master Mode, PCI 2.1 compliant)

❒ **BIOS**
  - Award System BIOS
  - 1Mb Flash ROM
  - Supports PnP, APM, DMI & multi-device (such as floppy, IDE/SCSI, CD-ROM, etc.) booting features
  - Built-in SYMBIOS SCSI BIOS

❒ **Chipset**
  - Intel 82430TX two chip PCIset

❒ **On Board Ultra I/O Functions**
  - WB 977TF I/O chip
  - 1FD (up to 2.88MB, 3 Mode), 2S (16550A compliant), 1P (SPP/ECP/EPP)
  - Supports IrDA IR function, up to 115.2kbps

❒ **Dual Ultra DMA-33 PCI IDE Port**
  - Support PIO Mode 4, Multi-word DMA Mode 2 & Ultra DMA-33 timing
  - Complete Bus Master Drivers for all well-known multi-tasking OS.

❒ **Dual Channel USB Port**

  ⚠ Now under compatibility testing with different peripherals

❒ **PCB Dimension**
  - Standard ATX form factor
  - 305mm x 220mm, 4-layer PCB
  - Eight mounting holes

❒ **Green PC**
  - Meets EPA Green PC standard: power consumption under 30W on Doze, Standby or Suspend mode

❒ **Advanced Power Management Features**
  - Software power control, Modem ring-up and Over-ride power button, etc.

1-2 Package Contents

This product comes with the following components:

❑ One mainboard
❑ One 40-pin IDE connector ribbon cable (Figure 1-1)
❑ One 34-pin floppy disk drive ribbon cable (Figure 1-2)
❑ One user's manual
❑ One Flash EPROM Utility & Bus Master IDE driver diskette

IDE cable

Figure 1-1

Floppy cable

Figure 1-2

1-3 Mainboard Layout

1-4 Jumper and Connector Reference Page Chart

Jumper & Connector No.	Function	Ref. page
JP2	CPU cooling fan connector	18
JP4	Open (Reserved for factory)	
JP7	Two channel USB connector	19
JP8	Infrared connector	18
JP9	Clear CMOS data jumper	19
J12	Green switch connector	17
	Green LED connector	17
	System reset switch connector	17
	CPU overheat alert LED connector	18
	Keyboard lock & power indicator LED connector	17
	Speaker connector	17
	IDE activity LED connector	18
	Over-ride power button connector	16
P1	ATX Power supply connector	15

1-5 Introduction to Jumpers

This section will introduce user-configurable jumpers on the mainboard.

Jumpers are used to select between various operating modes. A jumper consists of a row of gold colored pins that protrude from the surface of the mainboard. It is important not to confuse jumpers with connectors and headers.

⚠ **Putting jumper caps on anything that is not a jumper may result in the damage of your mainboard.** Please refer to Section 1-3, Mainboard Layout, for the location of jumpers on your mainboard.

As indicated in Figure 1-3 below, a cap is used to cover the pins of a jumper, resulting in shorting those pins that it covers. If the cap is not placed on the pins, the jumper is left "open." The number 1 shown both in the diagram below and in all multiple pin jumper and header diagrams in this manual indicates the pin designated with the number 1. The numbering of the remaining pins follows in sequence.

Pins   Cap   Setting
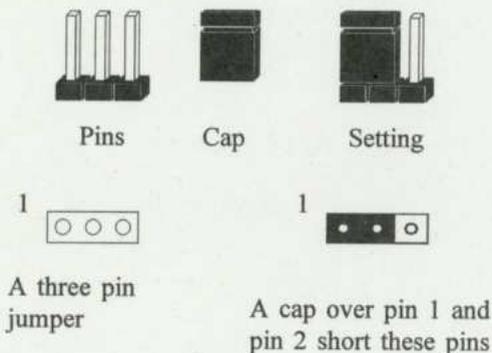
A three pin jumper

A cap over pin 1 and pin 2 short these pins

Figure 1-3

📬 *Memo*

Hardware Setup

If your mainboard has already been installed in your computer you may still need to refer to this chapter if you plan to upgrade your system's hardware.

⚠️ Be sure to disconnect the power cable from the power source before performing any work on your mainboard, i. e. installing a CPU, memory module, changing a jumper setting, etc. Not doing so may result in electrical shock!

2-1 Installing a PGA type CPU in a ZIF Socket

The Intel Socket 7, designed for the Pentium processor, has been incorporated as a standard mainboard specification and is compatible with AMD and Cyrix CPUs. To insert your CPU into Socket 7 please do the following:

1. Locate a small dot marked on the top surface of the CPU close to one if it's corners. The same corner will also be cut off, leaving a noticeable notch in the CPU's corner. These markings indicate Pin 1 of the CPU. See Figure 2-1.

Dot and notch mark Pin 1

int_el®
pentium™
PROCESSOR
A80501-66
L3301353
SX754
INTEL ®© 1992
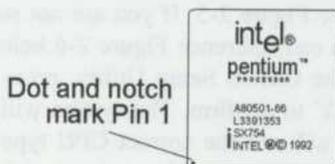
Figure 2-1 The markings on top of a CPU

2. Pull up the lever of Socket 7 so that it is perpendicular with the surface of the mainboard. Gently insert the CPU with Pin 1 at the same corner of Socket 7 that contains the end of the lever. Allow the the weight of the CPU to push itself into place. Do not apply extra pressure as doing so may result in damaging your CPU. Snap the lever back into place. See Figure 2-2.

Lever

Pin 1

Figure 2-2 Inserting a CPU into Socket 7.

⚠️ Installing a heat sink and cooling fan on top of your CPU is necessary for proper heat dissipation. Failing to install these items may result in overheating and possible burn-out of your CPU.

2-2 Setting Your CPU's Parameters(*SeePU* Technology)

SeePU is a new user friendly technology that enables the user to setup a mainboard's CPU parameters through an easy to use BIOS setup procedure. It is no longer necessary to make many jumper settings as on conventional mainboards.

1. After installing all your hardware into your PC system, turn on your system's power. Enter the CMOS Setup Utility by pressing the Delete key when your BIOS identification screen appears.
2. Move the cursor to SeePU & CHIPSET SETUP menu (Figure 2-3) and press Enter. Commands for operating the cursor in BIOS are found at the bottom of the BIOS screen.
3. There are two ways to set the CPU's parameters in the SeePU menu.
    a. Leave User's Favorite function disabled (default) and choose the correct CPU speed from the speeds available. See Figure 2-4. If you use this method, SeePU will set a default voltage of 3.3v for single voltage CPUs and 2.8/3.3v for dual voltage CPUs.
    b. Enable the User's Favorite function and choose the correct Core Voltage, CPU Bus Frequency, and Frequency Ratio (also known as external clock multiplier factor). See Figure 2-5. If you are not sure what your CPU's specifications are you can reference Figure 2-6 below for this information.
4. Press Esc to return to the CMOS Setup Utility, press F10 to Save and Exit Setup and choose 'Y' to confirm. The system will automatically reboot and during startup you will see the correct CPU type indicated in the configuration screen.

Figure 2-3

Figure 2-4

```
              ROM PCI / ISA BIOS (2A59IC39)
                 CPU & CHIPSET SETUP
                AWARD SOFTWARE, INC.

AUTO Configuration      : Enabled      PCI Delayed Transaction   : Disabled
DRAM Timing             : 70ns         Flash BIOS Protection     : Enabled
DRAM Leadoff Timing     : 10/6/3       Hardware Reset Protect    : Disabled
DRAM Read Burst (EDO/FP): x333/x444
DRAM Write Burst Timing : x333
Fast EDO Lead Off       : Disabled     *** INTEL MMX CPU Setup *****
Refresh RAS# Assertion  : 5 Clks
Fast RAS To CAS Delay   : 3            User's favorite          : Enabled
DRAM Page Idle Timer    : 2 Clks
DRAM Enhanced Paging    : Enabled      Core Voltage (V)         : 2.8
Fast MA to RAS# Delay   : 2 Clks       CPU Bus Frequency        : 66MHz
SDRAM (CAS Lat/RAS-to-CAS): 3/3        Frequency Ratio          : x2.5
SDRAM Speculative Read  : Disabled
System BIOS Cacheable   : Disabled
Video BIOS Cacheable    : Disabled
8 Bit I/O Recovery Time : 1
16 Bit I/O Recovery Time: 1            ESC: Quit        ↑↓→←     :Select Item
Memory Hole At 15M-16M  : Disabled     F1  : Help        PU/PD/+/- : Modify
PCI Passive Release     : Disabled     F5  : Old Values   (Shift) F2 : Color
                                       F7  : Load Setup Defaults
```

Figure 2-5

CPU Frequency

If you incorrectly set the CPU's parameters such that the computer is not able to boot, BIOS will automatically change the CPU's configuration to a default setting of either 83 or 110 MHz and your computer will automatically boot up at this setting. Note that this is the same default frequency at which your system boots when you change CPUs. Check the BIOS identification screen during bootup to verify the correct CPU frequency. If it is not correct, you can immediately press the Delete key and go back into the CPU and Chipset menu to reset the CPU parameters.

Overclocking

If the CPU frequency is set at a higher frequency than it's specification allows, it may or may not run at that freqency, depending on the quality of your CPU and the extent to which the the frequency has been overset. Operating a CPU at a higher frequency than it's specification allows is called overclocking. The mainboard manufacturer highly discourages overclocking as it may result in data loss, CPU burn-out, system failure, etc.

CPU Voltage

There are two major processor types in general use. Single-voltage processors such as Pentium, AMD-K5, and Cyrix 6x86 processors use a single voltage value for both core and I/O voltage settings. When you set the core voltage value to 3.3 or 3.5v, both core and I/O voltage settings are set to this value. Dual-voltage processors such as Pentium processors with MMX technology, AMD-K6 and Cyrix 6x86L processors use a dual voltage value for core and I/O voltage settings. When you choose 2.8, 2.9, or 3.2v for a core voltage value, the system sets this value for the core setting and sets 3.3v for the I/O setting.

⚠️ The on board switching power module can automatically distinguish between these two types of processors. A protection circuit is employed such that if you enter a single voltage value for a dual voltage CPU (or vice versa), the incorrect voltage setting will not be made. Instead, the system will revert to a default setting of 3.3v for single voltage CPUs and 2.8v/3.3v for dual voltage CPUs.

See below chart for details:

CPU-type		CPU Power Voltage		System freq./Freq. ratio	
		I/O Vcc	Core Vcc	MHz	Speed rate
Intel	P54C-90	3.5		60	x1.5
	P54C-120				x2
	P54C-150				x2.5
	P54C-100			66	x1.5
	P54C-133				x2
	P54C-166				x2.5
	P54C-200				x3
	Pentium w/MMX 166MHz	3.3	2.8		x2.5
	Pentium w/MMX 200MHz				x3
	Pentium w/MMX 233MHz				x3.5
Cyrix /IBM	6x86-PR133 + @110MHz	3.5		55	
	6x86-PR150 + @120MHz			60	
	6x86-PR166 + @133MHz			66	
	6x86L-PR166 + @133MHz	3.3	2.8		
AMD	K5-PR90	3.5		60	x1.5
	K5-PR100			66	
	K5-PR120 @90MHz			60	x2
	K5-PR133 @100MHz			66	
	K5-PR150 @105MHz			60	x2.5
	K5-PR166 @116.7MHz			66	
	K6/PR2-200	3.3	2.9	66	x3

Figure 2-6 CPU Parameter Chart

2-3 Connector and Jumper Settings

Connectors are used to link the system board with other parts of the system, including the power supply, the keyboard, and the various controllers on the front panel of the system case.

⚠ **The power supply connector is the last connection to be made while installing a mainboard. Before connecting the power supply, please make sure it is not connected to the power source.**

Power Supply Connector (P1)
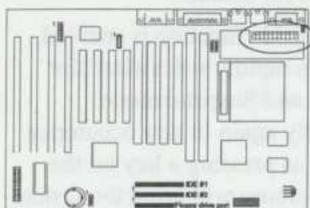
This mainboard requires a power supply of at least 200 watts. While installing the board, the power supply connector is usually the last part to be connected.

The ATX power supply provides a single 20-pin connector interface which incorporates standard +/- 5V, +/-12V, optional 3.3V and soft-power signals. The Soft-power signal, a 5V trickle supply of about 10mA, is continuously supplied when AC power is available. When the system is in the Soft-Off mode, this trickle supply maintains the system in it's minimum power state.
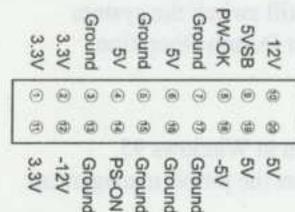
➢ Microsoft Windows 95 in conjunction BIOS's APM features can power down via software. Please refer to page 16 for details.

Front Panel Connector Set (J12)

CPU Overheat Alert LED
Power Indicator LED
Green Switch
KeyLock
Green LED
Speaker Connector
Reset Switch
IDE Activity LED
Over-ride Power Button

Power Button Operation
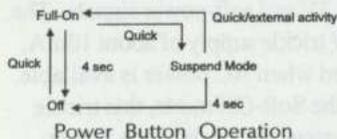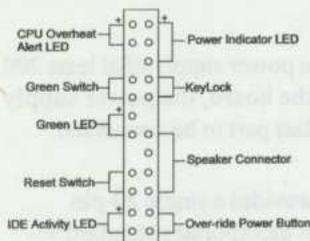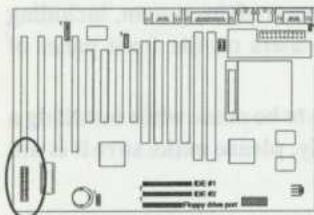
Over-ride Power Button Connector

The power button on the ATX chassis can be used as a normal power switch as well as a button to activate Advanced Power Management Suspend mode. This mode is used for saving electricity when the computer is not in use for long periods of time. The Power Button Override function in BIOS's Power Management Setup must be enabled to activate this function. See Section 3-4 for details.

When Power Button Override function is enabled, pushing the power button rapidly will switch the system between Full-On and Suspend mode. Pushing the button rapidly again or any occurence of external activity such as pressing a key on the keyboard or moving the mouse will bring the system back to Full-On. Pushing the button while in Full-On for more than 4 seconds will switch the system completely off. See Power Button Operation diagram.

☙ How to **Enable "Software Power-Off control"** function in Windows 95.
  1. In the **Power Management Setup** screen of BIOS, set the power management function to enable.
  2. Turn on the APM function on Windows 95.
     a. Find the **Advanced Power Management** icon in system device list
        (My Computer/Control Panel/System/Device Manager/System Device)
     b. In the **setting** Tag, click **Force APM 1.0 mode**.

☙ How to use **"Software Power-Off Control"** function in Windows 95.
  1. Click the **START button** on the Windows 95 task bar.
  2. Select **Shut Down The Computer** and the system turns off.
     The message **It is now safe to turn off your computer** will not be shown when using this function.

☙ What is **modem ring on** function ?
  While in Soft-off state, if an external modem ring on signal occurs, the system wakes up and can be remotely accessed. Please see Power Management (Section 3-4) for setting information.

CPU Overheat Alert LED — Power Indicator LED

Green Switch — KeyLock

Green LED

— Speaker Connector

Reset Switch

IDE Activity LED — Over-ride Power Button
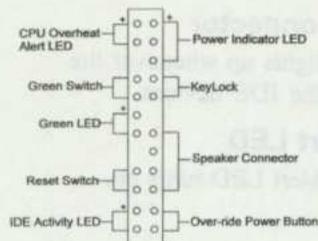
Keyboard Lock & Power Indicator LED Connector

Plugging this connector into the lock on the front panel of the system case allows the lock to enable or disable the keyboard. This function provides limited security against casual intruders. The power indicator LED shows the system's power status. It is important to pay attention to the correct cable and pin orientation (i.e., not to reverse the order of these two connectors.)

	Pin	Definition
Power Good LED	1	+5V DC
	2	No Connect
	3	Ground
	4	Keylock
Keyboard Lock	5	Ground

Green Switch / Green LED Connector

Some ATX cases provide a Green switch which is used to put the system in Suspend mode. In suspend mode, the power supply to the system is reduced to a trickle, the CPU clock is stopped, and the CPU core is in it's minimum power state. The system is woken up whenever the keyboard or mouse is touched or the Green button is pressed again. (The system resumes in different ways as defined by "Power Management Setup" screen in BIOS)

System Reset Switch Connector

This connector should be connected to the reset switch on the front panel of the system case. The reset switch allows you to restart the system without turning the power off.

Pin	Definition
1	System
2	GND

Speaker Connector

Pin	Definition
1	Speaker Signal
2	GND
3	GND
4	+5V DC

IDE Activity LED Connector

The IDE activity LED lights up whenever the system reads/writes to the IDE devices.

CPU Overheat Alert LED

If CPU overheats, the Alert LED turns on.

CPU Cooling Fan Connector(JP2)
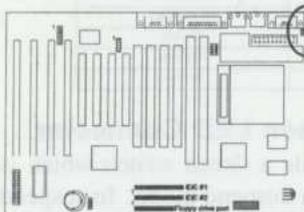
This added connector allows the fan to draw its power from the mainboard instead of the disk drive connector. Some systems have all the disk drive power connectors in use.

§ *APTC* (Active Processor Temperature Control) Technology

On overheating, the system can reduce the CPU's speed to prevent burn-out. When CPU temperature is over a default setting of 75+/-10°C, the system will give a warning signal and the CPU's speed will decrease to an arbitrary speed.

Infrared Connector (JP8)
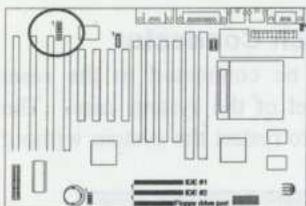
If you enable the BIOS's "Onboard IR Controller," the COM2 port will support IR functions.

§ Change CPU Speed with keyboard

Use the following commands to change the speed of the CPU speed i.e. turbo/non-turbo.

CTRL-ALT- "-": Set to low speed

CTRL-ALT- "+": Set to high speed (turbo)

Clear CMOS Data Jumper (JP9)
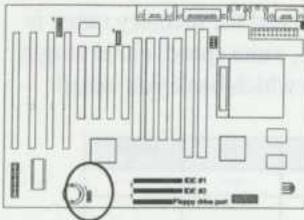
^{1} default ^{1} Clear CMOS data

⚠️ To clear the contents of the CMOS, please follow below steps.

1. Disconnect the system power supply from the power source.
2. Set JP9 at location 1~2 for 5 seconds, then set back to the default position.
3. Connect the system's power and then start the system.
4. Enter BIOS, load the setup default settings in the CMOS Setup Utility Menu and then set the system configuration.

USB(Universal Serial Bus) Connector (JP7)
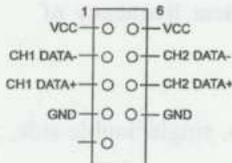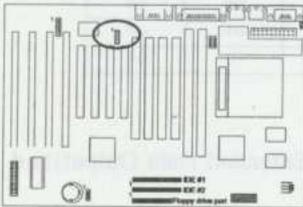
USB is an open industry standard, providing a simple and inexpensive way to connect up to 125 devices to a single computer port. Keyboards, mice, tablets, digitizers, scanners, bar-code readers, modems, printers and many more can all be used at the same time.

USB is a dynamically reconfigurable serial bus with an elementary data rate of 12Mbps, based on off the shelf, low cost micro-controller technology. It's modular layered software protocol supports sophisticated devices and application programs.

```
         1       6
VCC     ─O  O─  VCC
CH1 DATA- ─O  O─  CH2 DATA-
CH1 DATA+ ─O  O─  CH2 DATA+
GND     ─O  O─  GND
          ─O
```

This board contains a USB Host controller and includes a root hub with two USB ports (meets USB Rev 1.0 spec.). Two USB peripherals or hub devices are able to be connected.

⚠️ Compatibility with USB peripherals is still being tested.

2-4 Main Memory Configuration

The DRAM memory system on board consists of 3 banks, and the memory range is **8 ~ 256** MBytes. You must install 2 pcs SIMM (same size, same speed, either single or double sided) in each bank at a time. It does not matter which bank you install first.

					SIMM1,2	SIMM3,4	DIMM1	DIMM2
DIMM 2				Bank0	S/S	-----	-----	-----
DIMM 1				Bank1	S/S	S/S	-----	-----
SIMM 4		Bank2			S/S	D/S	-----	-----
SIMM 3					-----	S/S	-----	-----
SIMM 2		Bank0			D/S	-----	-----	-----
SIMM 1					D/S	S/S	-----	-----
					D/S	D/S	-----	-----
					-----	D/S	-----	-----
					-----	-----	S/S	-----
					-----	-----	S/S	S/S
					-----	-----	S/S	D/S
					-----	-----	-----	S/S
					-----	-----	D/S	-----
					-----	-----	D/S	S/S
					-----	-----	D/S	D/S
					-----	-----	-----	D/S

"S/S" - Single side

"D/S" - Double side

"---" - no use

DRAM Specifications :

DRAM types Supported - FP(Fast Page), EDO(Extended Data Output) and Synchronous DRAM

DRAM speed requirement - FP/EDO : 70-ns (or faster) for system frequency of 50 or 60MHz.
: 60-ns for system frequency of 66MHz.

SDRAM : 10/12ns

DRAM Module types & sizes : 4/8/16/32/64 MBytes, single/double-side, 5v SIMM
8/16/32/64 MBytes, single/double-side, 3.3v DIMM

Parity : Either parity or non-parity.

⚠ Most SDRAM will be 3.3V only (i.e. SDRAM I/O pins will not be 5V tolerant). **Don't mix and match 3.3V EDO/SDRAM DIMM with 5V EDO/FPM SIMM**.

⚠ Because 64MB SIMM/DIMM is not popular yet, the compatibility of 64MB SIMM/DIMM can not be 100% guaranteed.

☞ **This mainboard is limited to supporting 3.3V unbuffered type DIMM.**

This board has two DIMM (Dual-in-line Memory Module) sockets to support SDRAM type DRAM and has the better optimized read timings (7-1-1-1). The DIMM sockets will quickly replace SIMM as the next module standard for the PC industry and will become the memory subsystems standardized 64-bit data interface. Recently, JEDEC committee passed the unbuffered DIMM pinout specification as a standard for higher speed transfer. The unbuffered DIMM allows for SDRAM, BEDO, EDO and FPM DRAM compatibility as well as pinouts for x64, x72 with parity, x72 with ECC and x80 ECC.

The unbuffered DIMM is distinguished by the keyed notch lying to the right of the centerline of the DRAM key position as shown in the figure below.

📫 *Memo*
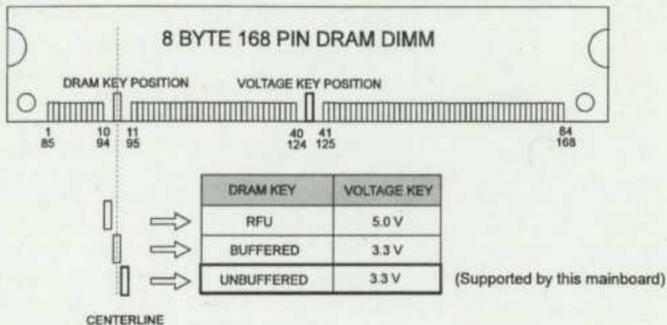
Award BIOS Setup Program

The system BIOS includes built-in BIOS for PCI SYMBIOS810. In the case that one of these PCI cards is installed, the system BIOS will auto-scan the ROM address and install the BIOS in the first available address.

Award's BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This content of information is stored in CMOS RAM so that it can retain the Setup information when the power is turned off.

When you turn on (or reboot) the system, press the [DEL] key to enter the Award BIOS setup screen as following.

```
ROM PCI / ISA BIOS (2A59IC39)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP              INTEGRATED PERIPHERALS

BIOS FEATURES SETUP             SUPERVISOR PASSWORD

SeePU & CHIPSET SETUP           USER PASSWORD

POWER MANAGEMENT SETUP          IDE HDD AUTO DETECTION

PNP/PCI CONFIGURATION           SAVE & EXIT SETUP

LOAD SETUP DEFAULTS             EXIT WITHOUT SAVING

ESC     : Quit                  ↑↓→←      : Select Item
F10     : Save & Exit Setup     (Shift) F2   : Change Color

Time, Date, Hard Disk Type...
```

Figure 3-1 Setup Program Initial Screen

3-1 Standard CMOS Setup

Choose the **"STANDARD CMOS SETUP"** option from the **"CMOS SETUP UTILITY"** menu (Figure 3-1) to display the following screen. This "Standard COMS Setup" Menu allows users to configure system components such as date, time, hard disk drive, floppy disk drive, display and memory. When a field is highlighted, on-line help information is displayed on the left bottom edge of the Menu screen.

```
                    ROM PCI / ISA BIOS (2A59IC39)
                       STANDARD CMOS SETUP
                       AWARD SOFTWARE, INC.


  Date (mm : dd : yy)  : Fri, Oct 6 1995
  Time (hh : mm : ss) : 9: 14: 43

  HARD DISKS          TYPE  SIZE  CYLS  HEAD  PRECOMP  LANDZ  SECTOR   MODE
  Primary Master   :  Auto   0     0     0       0       0      0      Auto
  Primary Slave    :  Auto   0     0     0       0       0      0      Auto
  Secondary Master :  Auto   0     0     0       0       0      0      Auto
  Secondayt Slave  :  Auto   0     0     0       0       0      0      Auto

  Drive A      : 1.44M, 3.5 in.
  Drive B      : None                          ┌──────────────────────────────┐
                                               │  Base Memory :      640K      │
  Video        : EGA/VGA                       │  Extended Memory :  15360K    │
  Halt On      : All Errors                    │  Other Memory :     384K      │
                                               │──────────────────────────────│
                                               │  Total Memory :    16384K     │
                                               └──────────────────────────────┘
  ESC      : Quit          ↑↓→←        : Select Item      PU/PD/+/-  : Modify
  F1       : Help        (Shift) F2    : Change Color
```

Standard CMOS Setup Screen

Primary/secondary Master/Slave TYPE:

This category identifies the types of hard disks that have been installed in the computer. There are 45 predefined types and 4 user defineable types for Enhanced IDE BIOS. Type 1 to type 45 are predefined. Type User is user-defineable.

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 drive 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 choose "User" to define your own drive type manually.

If you select "**User**", you will need to know the information listed below. Enter the information directly from the keyboard and press <Enter>. This information should be included in the documentation of your hard disk provided by vendor or system manufacturer.

TYPE	drive type
CYLS.	number of cylinders
HEADS	number of heads
PRECOMP	write precom
LANDZONE	landing zone
SECTORS	number of sectors
MODE	mode type

If you select "**Auto**", BIOS will Auto-Detect the HDD & CD-ROM Drive at the POST stage and show the IDE for HDD & CD-ROM Drive.

If the controller of HDD interface is **ESDI**, the selection shall be "**Type 1**".

If the controller of HDD interface is **SCSI**, the selection shall be "**None**".

If a hard disk has not been installed, select "**None**"and press <Enter>.

  ✎ **Write Pre-compensation** - The size of a sector gets progressively smaller as the track diameter diminishes, but each sector must still hold 512bytes.Write Pre-compensation circuitry on the hard disk compensates for the physical difference in sector size by boosting the write current for sectors on inner track.

  ✎ **Landing Zone** - The cylinder location where the heads will normally park when the system is shut down.

  ✎ **Capacitor** = (Number of heads) x (Number of cylinders) x (Number of sectors per track) x (512 Bytes per sector)

  ✎ **Mode:**

    For IDE hard drives, the BIOS provides three modes to support both normal IDE hard disks and drives larger than 528MB:

    Auto mode (default) - detect and enter the IDE device type during bootup.

    Normal mode - for IDE drives smaller than 528MB.

    LBA mode - provides LBA (Large Block Addressing) function for mass capacity hard disk that are between 528MB and 8.4GB (Giga Bytes).

    Large mode - some mass capacity hard disks operate in large mode and doe not support LBA function for above mentioned mass capacity hard disk. Large mode is a new specification which may not be fully supported by all operation systems (MS-DOS does support it now, but is uncommon.)

3-2 BIOS Features Setup

By choosing the **"BIOS FEATURES SETUP"** option from the **"CMOS SETUP UTILITY"** menu(Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the mainboard.

```
                    ROM PCI / ISA BIOS (2A59IC39)
                         BIOS FEATURES SETUP
                        AWARD SOFTWARE, INC.

 Virus Warning            : Disabled    Video  BIOS  Shadow  : Enabled
 CPU Internal Cache       : Enabled     C8000 - CBFFF Shadow  : Disabled
 External Cache           : Enabled     CC000 - CFFFF Shadow  : Disabled
 Quick Power On Self Test : Enabled     D0000 - D3FFF Shadow  : Disabled
 Boot Sequence            : A,C,SCSI    D4000 - D7FFF Shadow  : Disabled
 Swap Floppy Drive        : Disabled    D8000 - DBFFF Shadow  : Disabled
 Boot Up Floppy Seek      : Enabled     DC000 - DFFFF Shadow  : Disabled
 Boot Up NumLock Status   : On
 Boot Up System Speed     : High
 Typematic Rate Setting   : Disabled
 Typematic Rate (Chars/Sec) : 6
 Typematic Delay (Msec)   : 250
 Security Option          : Setup
 PCI/VGA Palette Snoop    : Disabled
 OS Select(For DRAM>64MB) : Non-OS2     ESC : Quit            ↑↓→←    :Select Item
                                        F1  : Help            PU/PD/+/-   : Modify
                                        F5  : Old Values      (Shift) F2  : Color
                                        F7  : Load Setup Defaults
```

BIOS Feature Setup Screen

A. *VIRUS PROTECTION*

Virus Warning:

After Enabled, BIOS activates a warning message to the user when any program attempts to access the boot sector or hard disk partition table and allows the user to intervene.

B. *CACHE CONTROL*

CPU Internal Cache/External Cache

These fields allow you to enable or disable the CPUs "Level 1" built-in cache and "Level 2" secondary cache.

C. *BOOT UP FEATURES*

After powering on the system, BIOS will perform a series of device initializations and diagnostic tests.

Quick Power On Self Test

If this is set to Enabled, BIOS will skip some check items during POST.

Boot Sequence

This option sets the sequence of boot drives (either floppy drive A: or hard disk drive C:) that BIOS attempts to boot after POST completes.

> ❧ CD-ROM driver is becoming a standard device on computer system. It has a large storage capacity advantage and can store different operating systems on it that can bootup the system. Now we provide a CD-ROM boot-up function that allows the user to select booting from A:, C: or CD-ROM. Regardless of whether the CD-ROM is IDE or SCSI, the system will look for the first available bootable device for the operating system.

Swap Floppy Drive

Enabled - The system will swap the floppy drive assignment so that drive A will function as drive B, drive B will function as drive A.

Boot Up Floppy Seek

During POST, BIOS will determine if the floppy installed disk drive is 40 or 80 tracks. (360K type drive is 40 tracks and the 720K, 1.2M and 1.44M are 80 tracks)

Boot Up NumLock Status

Defines the keyboard as number keys or arrow keys.

Boot Up System Speed

This option can be used to select the speed of CPU at system boot time.

D. KEYBOARD INTERFACE

Typematic Rate Setting

When enabled, you can set the following two typematic control items.

Typematic Rate (Chars/Sec)

The typematic rate sets the rate at which characters on the screen repeat when a key is pressed and held down.

Typematic Delay (Msec)

Determines how long after you press a key that a character begins repeating.

E. Security Option

System: When entering wrong password, the system will not boot and will deny any access to the BIOS Setup.

Setup: When entering a wrong password, the system can boot, but will not allow any access to the BIOS Setup.

F. PCI/VGA Palette Snoop

A system may have two display devices present in the system : a VGA-compatible interface and another graphics controller. In this case, both devices implement the color palette registers at the same I/O addresses. The configuration software must program one of the devices to actively act as the target, while the other device is programmed to quietly "snarf" the write data from the bus as it flies by on its way to the other device.

✎ Some non-standard VGA cards or MPEG video cards may not show colors properly. By changing the setting to **Enable** You can correct this problem.

G. OS Select (For DRAM > 64MB)

If your system DRAM is larger than 64MB and you are running OS/2, please select "OS/2" as the item value. If running any other operating system, please set the item value to "Non-OS/2".

H. Shadow Memory

BIOS can copy adapter's ROM from address C0000h through DFFFFh to RAM for faster execution. Shadow setting is chipset specific and dependent on system hardware.

3-3 *SeePU* & Chipset Setup

By choosing the **"CHIPSET FEATURES SETUP"** option from the **CMOS SETUP UTILITY** menu(Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the mainboard.

```
                    ROM PCI / ISA BIOS (2A59IC39)
                       SeePU & CHIPSET SETUP
                       AWARD SOFTWARE, INC.


  AUTO Configuration        : Enabled    PCI Delayed Transaction     : Disabled
  DRAM Timing               : 70ns       Flash BIOS Protection       : Enabled
                                         Hardware Reset Protect      : Disabled
  DRAM Leadoff Timing       : 10/6/4
  DRAM Read Burst (EDO/FP)  : x333/x444
  DRAM Write Burst Timing   : x333       ***** INTEL MMX CPU Setup *****
  Fast EDO Lead Off         : Disabled
  Refresh RAS# Assertion    : 5 Clks     User's favorite             : Disabled
  Fast RAS To CAS Delay     : 3          CPU Speed                   : 200MHz
  DRAM Page Idle Timer      : 2 Clks
  DRAM Enhanced Paging      : Enabled
  Fast MA to RAS# Delay     : 2 Clks
  SDRAM (CAS Lat/RAS-to-CAS) : 3/3
  SDRAM Speculative Read    : Disabled
  System BIOS Cacheable     : Disabled   ESC : Quit          ↑↓→←     :Select Item
  Video BIOS Cacheable      : Disabled   F1   : Help         PU/PD/+/-  : Modify
  8 Bit I/O Recovery Time   : 1          F5   : Old Values    (Shift) F2 : Color
  16 Bit I/O Recovery Time  : 1          F7   : Load Setup Defaults
  Memory Hole At 15M-16M    : Disabled
  PCI Passive Release       : Disabled
```

Chipset Features Setup Screen

⚠ With the exception of the CPU Setup all of the above settings are standard for your mainboard and should not be changed.

✍ If professional engineers or customers would like to make some adjustments to gain even better system stability and performance, please visit http://www.award.com to search for helpful information.

A. *Auto Configuration : Enabled*

DRAM Timing: 70ns (default)

The BIOS can autodetect the DRAM module type (i.e. EDO or FP) and set the optimal timing for items 3 through 11. If the Auto configuration setting is enabled, you must choose between 60ns and 70ns DRAM timing in item 2.

B. 8-bit I/O Recovery Time & 16-bit I/O recovery time

This category is used to add additional recovery delay between CPU or PCI master 8-bit (or 16-bit) I/O cycles to the ISA Bus. The options are 1 to 8 and N/A.

C. Memory Hole at 15M-16M

Enabling this feature will reserve the 15MB to 16MB memory address space for ISA expansion cards. However, enabling this function will result in not allowing the system to have access to memory above 16MB. Please note that some expansion cards require this setting to be enabled. The default setting is Disabled.

D. Flash BIOS Protection

Chaintech developed BIOS protection technology that protects the System BIOS kernel data from accidental corruption by unauthorized users or computer viruses.

Enabled (default): The BIOS data cannot be changed when attempting
                 to update BIOS with the the FLASH utility

Disabled: The BIOS data can be updated by using the FLASH utility.

⚠️ Please note that when disabling this setting, the system BIOS is vulnerable of intrusion by computer viruses. It is recommended to disable this setting only temporarily while updating your system's BIOS.

E. Hardware Reset Protect

When enabled, your PC's hardware reset button will not function. This function is especially useful to prevent accidental resets for file servers and routers, etc. which should be available 24 hrs/day.

When disabled, your PC's hardware reset button will function normally.

F. CPU Setup

Chaintech developed SeePU technology that allows you to easily change your CPU's I/O and set **the CPU's core voltage**, **clock mulfiplier factor** and **CPU Bus frequency** in the BIOS setup. Refer to Section 2-2 for details.

3-4 Power Management Setup

This section provides information on the Green PC power management funtcions. In order to enable the power management function, please select the **"POWER MANAGEMENT SETUP"** option from the **"CMOS SETUP UTILITY"** menu (Figure 3-1).

```
            ROM PCI / ISA BIOS (2A59IC39)
            POWER MANAGEMENT SETUP
            AWARD SOFTWARE, INC.

Modem Ring Power ON  : Disabled       ** Break Event From Suspend **
                                      IRQ8    Clock Event    : Disabled
Power Management      : Disabled
PM Control by APM     : Yes            ** Reload Global Timer Events**
Video Off Method      : V/H SYNC+Blank IRQ [3-7, 9-15], NMI  : Enabled
Video Off After       : Standby        Primary IDE 0         : Disabled
                                       Primary IDE 1         : Disabled
Doze Mode             : Disable        Secondary IDE 0       : Disabled
Standby Mode          : Disable        Secondary IDE 1       : Disabled
Suspend Mode          : Disable        Floppy Disk           : Disabled
HDD Power Down        : Disable        Serial Port           : Enabled
Throttle Duty Cycle   : 62.5%          Parallel Port         : Disabled
ZZ Active in Suspend  : Disabled
Thermal Warning Option : Enabled
VGA Active Monitor    : Enabled       ESC : Quit           ↑↓→←      :Select Item
Power Button Override : Enabled       F1   : Help          PU/PD/+/- : Modify
CPUFAN off In Suspend : Enabled       F5   : Old Values    (Shift) F2 : Color
Resume by Alarm       : Disabled      F7   : Load Setup Defaults
```

Power Management Setup Screen

A. Modem Ring Power On

When enabled, a modem that receives a call will wake up the system from soft off and green mode. You should connect the modem to the COM port and turn on the resume event in green mode.

B. Selecting "Power Management" Mode:

Power Management

> **User Define** - User can configure her/his own power management function.

> **Disabled** - Disable the power management functions.

> **Min. Saving** - All timers have the following value.

>> **Doze** - 1hr, Standby - 1hr, Suspend- 1hr.

> **Max. Saving** - all timers have the following value.

>> **Doze** - 1min, Standby - 1min, Suspend- 1min.

PM Control by APM

Supports the Intel and Microsoft INT 15h Advanced Power Management BIOS function which creates an interface to allow the OS to communicate with the SMM code. If APM is not installed, this option has no effect.

    APM(Advanced Power Management) should be installed to keep the time updated when the computer enters suspend mode activated by the BIOS Power Management. For DOS environment, you need to add DEVICE= C:\DOS\POWER.EXE. For Windows 3.1x and Windows 95, you need to install Windows with the APM feature.

Video Off Method

Blank -BIOS will only blank the screen when disabling video.

V/H SYNC+Blank - BIOS will blank the screen and turn off V/H SYNC signals to turn off the V-SYNC and H-SYNC signals from VGA cards to monitor.

    If Green monitors detect the V/H-SYNC signals have turned off, it will cut the electron gun to save power consumption.

Video Off After

This setting determines when the screen will blank when Power Management is enabled. N/A is the disable setting.

C. PM Time Setting

Doze Mode

If no PM events happened and the Doze timer expires, system will enter CPU Doze mode.

Standby Mode

If system runs in Doze mode and the Standby timer expires, the system will enter CPU Standby mode (CPU speed = CPUCLK / 3 MHz) from Doze mode.

    The CPUCLK (external CPU clock) means system clock mentioned in this manual.

Suspend Mode

If the system does not detect any activity, and the Suspend timer expires, the system will stop the CPU clock (CPU speed = 0 MHz).

    In Standby or Suspend mode, the system may also turn off the video signal and power down the hard disk driver (depends on HDD Power Down setting).

HDD Power Down

When the HDD idle time has elapsed, the BIOS sends a command to the hard disk to enter sleep mode (turn off the motor). This function is only valid for IDE HDDs that support the power saving function.

Throttle Duty Cycle

When the system enters Doze mode, the CPU clock runs only part of the time. You may select the percent of time that the clock runs.

ZZ Active in Suspend

When Enabled, the L2 cache goes to a sleep mode during Suspend mode.

Thermal Warning Option

When Enabled, an alarm will sound if your CPU becomes too hot. Your computer's internal speaker must be connected to the Speaker Connector of the Front Panel Connector to enable this function.

VGA Active Monitor

When Enabled, any video activity restarts the global timer for Standby mode.

Power Button Override

When Enabled, this function allows the power button to put the system in Suspend, a power saving mode. See section 2-3 for operation instructions of the power button.

CPU Fan Off in Suspend

When Enabled, the CPU fan turns off during Suspend mode.

Resume by Alarm

When enabled, this setting allows the system to turn back on at a designated time of the month. User must designate date of month and time of day. This function is only available when using Soft Power-Off. See How to **Enable "Software Power-Off control"** function in Windows 95 in Section 2-3 of this manual for instructions.

D. Break Event From Suspend

IRQ8 Clock Event

You can turn On or Off monitoring of IRQ8 (the Real Time Clock) so it does not awaken the system from Suspend mode.

Reload Global Timer Events

When Enabled, an event occurring on each device listed restarts the global time for Standby mode.

3-5 PNP/PCI Configuration

```
                    ROM PCI / ISA BIOS (2A59IC39)
                       PNP/PCI CONFIGURATION
                       AWARD SOFTWARE, INC.
```

PNP OS Installed	: No	PCI IDE IRQ Map To : ISA
Resources Controlled By	: Manual	
Reset Configuration Data	: Disabled	FDD IRQ Can Be Free : No
		Assign IRQ For VGA : Disabled
IRQ-3 assigned to	: Legacy ISA	Used MEM base addr : N/A
IRQ-4 assigned to	: Legacy ISA	
IRQ-5 assigned to	: PCI/ISA PnP	
IRQ-7 assigned to	: PCI/ISA PnP	
IRQ-9 assigned to	: PCI/ISA PnP	
IRQ-10 assigned to	: PCI/ISA PnP	
IRQ-11 assigned to	: PCI/ISA PnP	
IRQ-12 assigned to	: PCI/ISA PnP	
IRQ-14 assigned to	: Legacy ISA	
IRQ-15 assigned to	: Legacy ISA	
DMA-0 assigned to	: PCI/ISA PnP	ESC : Quit ↑↓→← :Select Item
DMA-1 assigned to	: PCI/ISA PnP	F1 : Help PU/PD/+/- : Modify
DMA-3 assigned to	: PCI/ISA PnP	F5 : Old Values (Shift) F2 : Color
DMA-5 assigned to	: PCI/ISA PnP	F7 : Load Setup Defaults
DMA-6 assigned to	: PCI/ISA PnP	
DMA-7 assigned to	: PCI/ISA PnP	

PCI & ONBOARD I/O Setup Screen

A. PNP OS installed

If you want to install a PNP compatible OS (such as Windows 95, Windows NT 4.x), please set to **Yes**.

B. Resource Control

Manual : The system BIOS will not refer to the ESCD for IRQ & DMA information. Instead, it will refer to the items in the setup menu for assigning IRQ & DMA.

Auto : The system BIOS will refer to the ESCD for all legacy information.

⤴ ESCD(Extended System Configuration Data) provides a detailed format of the configuration data structures stored in flash memory. Each data structure defines the resources used by a device or a card in the system. This includes legacy and PCI/ISA PnP devices.

C. Reset Configuration Data

Enable : The system BIOS will clear/reset the ESCD during POST.

⚠ After clearing the ESCD, the BIOS will then change this item's value to "Disabled", otherwise, the ESCD data will become useless.

D. IRQ#/DMA# assign to

When resources are controlled manually, you can assign each system interrupt & DMA channel for "Legacy ISA" or "PCI/ISA PnP" card used.

⚠️ While using **Legacy ISA Card**(non-PnP ISA card), please set it's necessary corresponding resources (INT#, DMA#) from "PCI/ISA PnP" to "Legacy ISA".

⚝ All ISA non-PnP devices are legacy devices that select resources (I/O Addr., INT# or DMA#) by using hardware jumpers.

⚝ IRQ-3/4/7/12/14/15 have been set as default for on board devices (COM2, COM1, Printer port, PS/2 mouse, IDE1 and IDE2).

E. PCI IDE IRQ Map to

This function allows user to select PC AT (ISA) interrupts or PCI IDE IRQ mapping.

ISA: BIOS does not designate any IRQ signal to the PCI slot. This is the default setting.

PCI-SLOT 1-4: User can designate which PCI slot (1-4) the IDE card is inserted into. This setting is suitable for use with older PCI IDE cards that BIOS is not able to recognize.

PCI-AUTO: BIOS automatically detects which PCI slot the PCI IDE card is inserted into.

F. FDD IRQ Can Be Free

This function allows user to choose if the FDD IRQ is able to be freed up. The default setting is NO and this does not allow the IRQ to be free.

G. Assign IRQ For VGA

This function allows BIOS to make an IRQ available to VGA cards. Current VGA card models do not require this function to be enabled. The default setting is disabled.

H. Used MEM base addr

This function devotes a space of memory (8K, 16K, 32K, 64K) for any peripheral that has a high memory requirement. This is also used to designate memory space for legacy ISA cards. The settings C800~DC00 are used to to designate point at which the memory will start being used. The default setting is N/A (disabled.)

I. Used MEM Length

8K~64K: Determines the amount of memory to be used by ISA cards mentioned in item H above.

3-6 Load Setup Defaults

"LOAD SETUP DEFAULTS" loads the default system values directly from **"CMOS SETUP UTILITY"** menu (Figure3-1). If the stored record created by the setup program becomes corrupted (and therefore unusable), these defaults will be loaded automatically when you turn on the computer.

```
ROM PCI / ISA BIOS (2A59IC39)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.
```

STANDARD CMOS SETUP	INTERGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FE	
POWER MAN	Load SETUP Defaults <Y/N>? N
PNP/PCI CONFIGURATION	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING

ESC : Quit	↑↓→← : Select Item
F10: Save & Exit Setup	(Shift) F2 : Color

Load SETUP Defaults except Standard CMOS SETUP

Load Setup Defaults Screen

3-7 Integrated Peripherals

```
                  ROM PCI / ISA BIOS (2A59IC39)
                     INTEGRATED PERIPHERALS
                     AWARD SOFTWARE, INC.
```

IDE HDD Block Mode	: Enabled	Onboard Serial Port 1	: 3F8/IRQ4
IDE Primary Master PIO	: Auto	Onboard Serial Port 2	: 2F8/IRQ3
IDE Primary Slave PIO	: Auto	Onboard IR Controller	: Disabled
IDE Secondary Master PIO	: Auto		
IDE Secondary Slave PIO	: Auto	Onboard Parallel Port	: 378/IRQ7
IDE Primary Master UDMA	: Auto	Parallel Port Mode	: SPP
IDE Primary Slave UDMA	: Auto		
IDE Secondary Master UDMA	: Auto	USB Keyboard Support	: Disabled
IDE Secondary Slave UDMA	: Auto		
On-Chip Primary PCI IDE	: Enabled		
On-Chip Secondary PCI IDE	: Enabled		
Onboard FDC Controller	: Enabled		
FDC Write Protect	: Disabled		

```
ESC : Quit                    ↑↓→←        :Select Item
F1   : Help                    PU/PD/+/-    : Modify
F5   : Old Values             (Shift) F2    : Color
F7   : Load Setup Defaults
```

PCI & ONBOARD I/O Setup Screen

A. On Board IDE Control

IDE HDD Block Mode

Specify the maximum number of sectors that can be transferred at a time.

On-chip Primary/Secondary PCI IDE

You can set this to disable the On-chip IDE controller if you are going to add a higher performance IDE board.

IDE Primary/Secondary, Master/Slave, PIO

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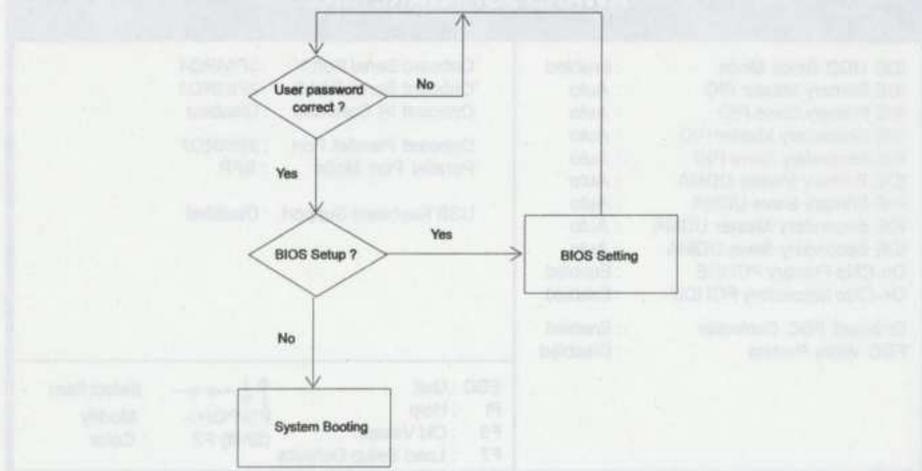In Auto mode, the system automatically determines the best mode for each device.

B. On Board IR Controller :

When this function is Enabled, then the COM port will be redirected to support IR functionality.

3-8 Supervisor Password & User Password Setting

A. Set "User password" Only

If "Security Option" (located in BIOS features Setup Screen) is set to "System"

If "Security Optional" is set to "Setup"
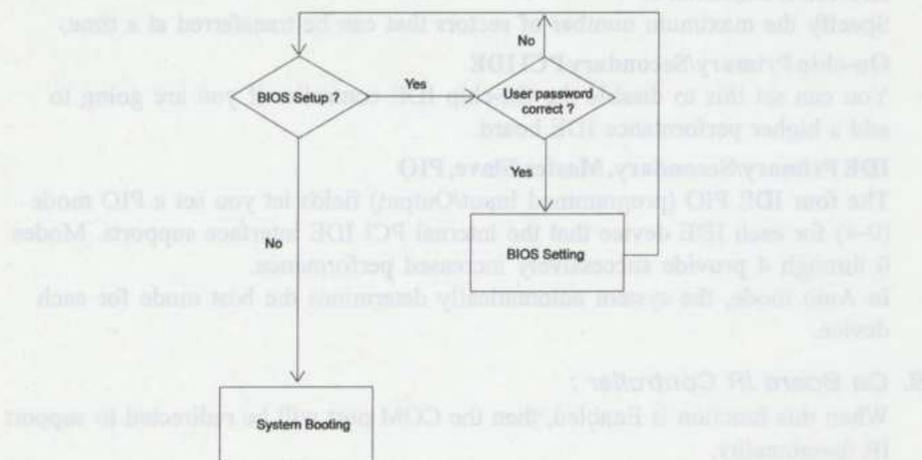
B. Set both "Supervisor password" and "User password"
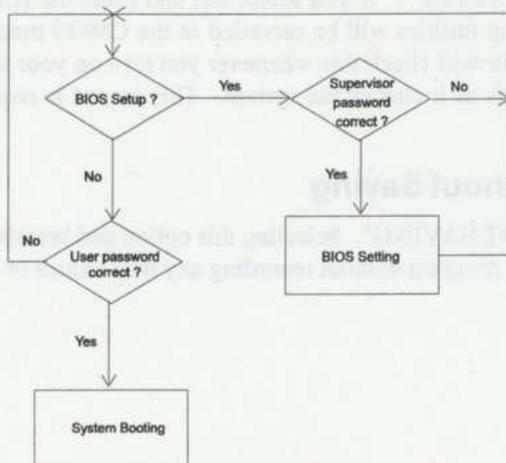
3-9 IDE HDD Auto Detection

This utility can AUTO DETECT IDE hard disk type .

ROM PCI / ISA BIOS (2A59IC39)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master :								

Select Primary Master Option (N=Skip) : Y

OPTIONS	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
2 (Y)	547	530	32	0	1059	63	LBA
1	547	1060	16	65535	1059	63	NORMAL
3	547	530	32	65535	1059	63	LARGE

Note: Some OSes (like SCO-UNIX) must use "NORMAL" for installation

ESC: Skip

IDE HDD Auto Detection Screen

3-10 Save and Exit Setup

"SAVE & EXIT SETUP". If you select this and press the [Enter] key, the values entered in the setup utilities will be recorded in the CMOS memory of the chip set. The microprocessor will check this whenever you turn on your system, and compare this to what it finds as it checks the system. This record is required for the system operation.

3-11 Exit Without Saving

"EXIT WITHOUT SAVING". Selecting this option and pressing the [Enter] key let you exit the Setup program without recording any new values or changing old ones.
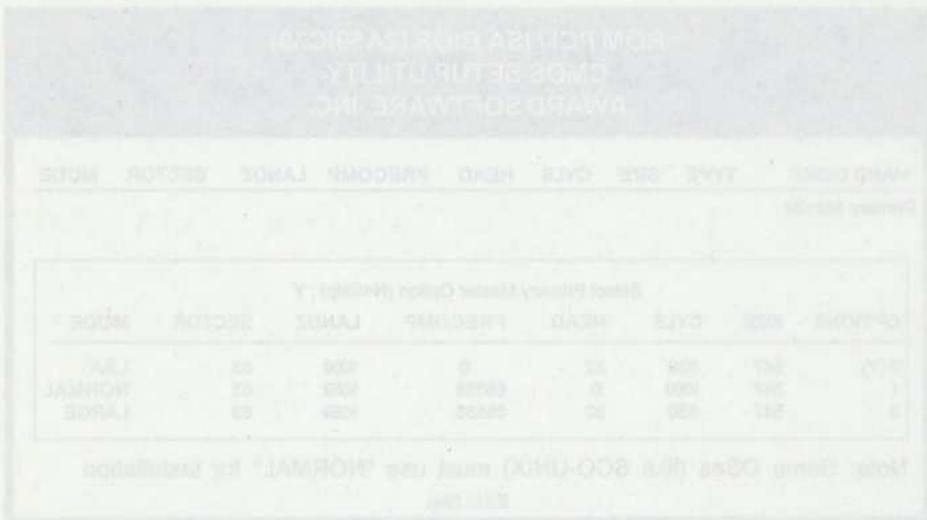
Brief Software Drivers Guide

4-1 Quick Bus Master / PIO IDE Drivers Installation

⚠️ This board offers two E-IDE (Enhanced IDE) connectors, each of which can support two devices. Please set the primary channel for E-IDE hard disks and set the secondary channel for slow throughput ATAPI compliant peripherals. (such as ATAPI CD-ROM)

⚠️ If you are installing a secondary E-IDE drive, you may have difficulty getting the two drives to work together since some brands of E-IDE drives will not work on the same bus as other brands. You will have to designate one drive as a master and the other as a slave.

> ➤ In order to get decent performance from your CD-ROM drive, you need to load SmartDrive (V5.0 or later version) to cache your CD. Please load the CD-ROM driver and MSCDEX before loading SmartDrive so the CD-ROM can cache.

1. Windows NT

The Windows NT driver for the Intel 82371AB (PIIX4) chipset is not available at manual publishing date.

2. Windows 95

Windows 95 does not support the Intel 82371AB PIIX4 chipset but Windows 95OSR2 can support the dual PCI IDE controller by adding the following lines to recognize the 82371AB PIIX4 chipset. Edit the following files:

C:\WINDOWS\INF\MSHDC.INF

[INTEL_HDC]
%PCI\VEN_8086&DEV_7111.DeviceDesc%=DUAL_GOOD_IDE,PCI\VEN_8086&DEV_7111

[CONTROLFLAGS]
CopyFilesOnly=PCI\VEN_8086&DEV_7111

[STRINGS]
PCI\VEN_8086&DEV_7111.DeviceDesc="Intel 82371AB PCI Bus Master IDE Controller"

C:\WINDOWS\INF\MACHINE.INF

> Note: Each HKLM line is continuous, do not add Return

[PCI_DRV_AddReg]
HKLM,System\CurrentControlSet\Services\VxD\PCI,71118086,1,04,00,00,00

HKLM,System\CurrentControlSet\Services\VxD\PCI\IRQMiniports\71118086,Name,
"Intel 82371AB"

HKLM,System\CurrentControlSet\Services\VxD\PCI\IRQMiniports\71110806,Path,
"PCIMP.PCI"

HKLM,System\CurrentControlSet\Services\VxD\PCI\IRQMiniports\7111080806,
Instance,1,01,00,00,00

3. OS/2 2.0 and WARP 3.X

1) **Run** the install utility (SETUP.EXE) in drive A(or B):\OS2
   After running SETUP.EXE, copy PIIXIDE.ADD and PIIXIDE.FLT to the \OS2
   directory in the boot drive.

2) Make the following changes to the CONFIG.SYS file :

Replace :	With :
BASEDEV=IBM1S506.ADD	BASEDEV=PIIXIDE.ADD

Replace :	With :
BASEDEV=IBMIDECD.FLT	BASEDEV=PIIXIDE.FLT

3) Shutdown and reboot the system.

> PIIXIDE.ADD auto-detects DMA capable hard disk drives and configures
  them and the Intel PCIset for bus master DMA transfers.

4-2 Update Your System BIOS

Your system is equipped with a Flash ROM which allows users to update the
BIOS to a newer version without changing components.

⚠ Please remove (or remark) any installed Memory Management Utility
(such as EMM386.EXE, QEMM.EXE...,etc.) in the CONFIG.SYS files,
before running this utility.

1. Insert the Flash Utility Diskette in drive A(or B).

2. **Type** "A(or B):**AWDFLASH**" at DOS command line and press
[Enter] key.

3. You will see the following setup on screen.

4. Please **key in BIOS file name** . (The filename will be released from
your dealer when a new up-dated BIOS is released).

```
        FLASH  MEMORY WRITER V5.33C

    Copyright  (C) 1996, Award Software, Inc.

  For 82430VX-2A59IC39                03/22/95
  Flash Type - STT 28EE010 & 28EE011 /5V
  File Name to Program:

  Error Message:
```

5. If you don't want to save the previous BIOS data to the diskette ,
please key in [N] .

```
        FLASH  MEMORY WRITER V5.33

    Copyright  (C) 1996, Award Software, Inc.

  For 82430VX-2A59IC39                03/22/95
  Flash Type - STT 28EE010 & 28EE011 /5V
  File Name to Program 5TTM.BIN

  Error Message: Do You Want To Save  BIOS (Y/N)
```

If you want to save the previous BIOS data to the diskette, please key in [Y].

```
        FLASH  MEMORY WRITER V5.33

    Copyright (C) 1996, Award Software, Inc.


  For 82430VX-2A59IC39               03/22/95
  Flash Type - STT 28EE010 & 28EE011 /5V
  File Name to Program 5TTM.BIN
  Now Backup System BIOS to BIOS. Old file!

  Error Message: Please Wait !
```

6. Type [Y], then you will start the programming.

```
        FLASH  MEMORY WRITER V5.33

    Copyright (C) 1996, Award Software, Inc.


  For 82430VX-2A59IC39               03/22/95
  Flash Type - STT 28EE010 & 28EE011 /5V
  File Name to Program 5TTM.BIN


  Error Message: Are You Sure To Program (Y/N)
```

7. As programming finishes, the system will automatically Restart.

```
        FLASH  MEMORY WRITER V5.33

    Copyright (C) 1996, Award Software, Inc.


  For 82430VX-2A59IC39               03/22/95
  Flash Type - STT 28EE010 & 28EE011 /5V
  File Name ot Program 5TTM.BIN
  Programming Flash memory - OK
  ■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■
  Error Message: Please Power Off Or Reset System !
```

4-3 DMI Utility

DMI (Desktop Management Interface) is a new method of managing computers in an enterprise network. The main component of DMI is the MIFD(Management Information Format Database). This database contains all the information about the computing system and it's components. Using DMI, a system administrator can obtain the types, capabilities, operational status, installation data and other information about the system components.

We support DMI features in BIOS and provide a DMI utility to maintain a MIFD file.

The system BIOS uses the same technology implemented for plug and play to allow dynamic real-time update system information and stores the collected information (e.g. CPU type and speed, Bus frequency , memory size and speed) in the motherboard's Flash EPROM.
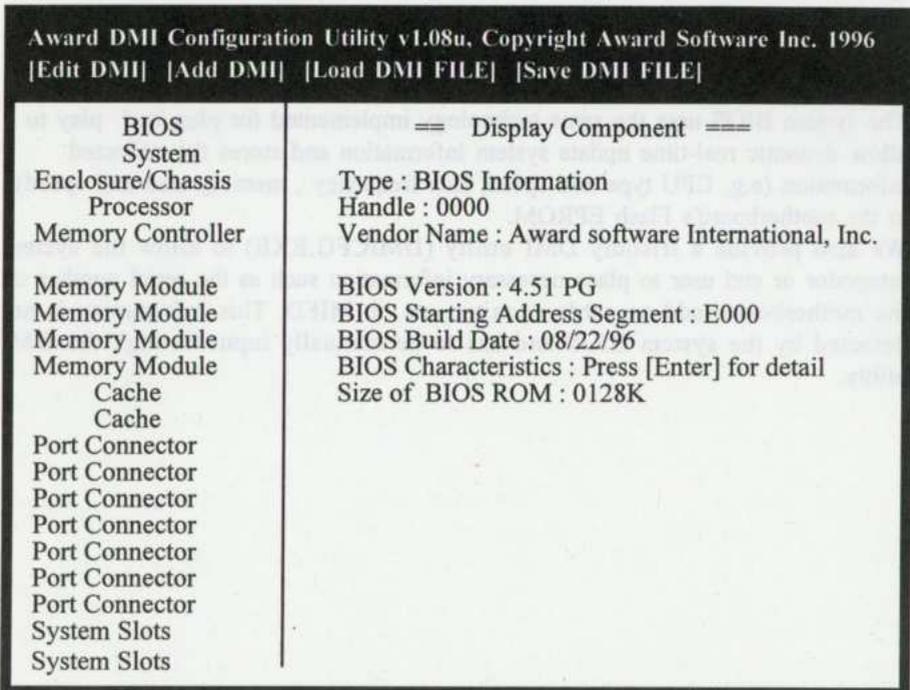
We also provide a friendly DMI utility (DMICFG.EXE) to allow the system integrator or end user to place necessary information such as the serial number on the motherboard, add-on cards, monitor, etc. in MIFD. This information is not detected by the system BIOS and has to be manually input through the DMI utility.

The DMICFG.EXE(DMI Configuration Utility for modifying/reviewing the MIFD) contained in the Driver disk that comes with your mainboard.

⚠ Please remove (or remark) any installed Memory Management Utility (such as EMM386.EXE, QEMM.EXE...,etc.) in the CONFIG.SYS files before running this utility.

Type A: DMICFG and the fowllowing screen will appear :

```
Award DMI Configuration Utility v1.08u, Copyright Award Software Inc. 1996
[Edit DMI]  [Add DMI]  [Load DMI FILE]  [Save DMI FILE]

        BIOS             ==  Display Component  ===
        System
  Enclosure/Chassis      Type : BIOS Information
       Processor         Handle : 0000
  Memory Controller      Vendor Name : Award software International, Inc.

   Memory Module         BIOS Version : 4.51 PG
   Memory Module         BIOS Starting Address Segment : E000
   Memory Module         BIOS Build Date : 08/22/96
   Memory Module         BIOS Characteristics : Press [Enter] for detail
        Cache            Size of  BIOS ROM : 0128K
        Cache
   Port Connector
   Port Connector
   Port Connector
   Port Connector
   Port Connector
   Port Connector
   Port Connector
   System Slots
   System Slots
```

-Move cursor   Enter-Accept   DEL-Delete   ESC-Abort&Exit

Use the ↔ (left-right) cursor to move the top menu items and the ↑↓ (up-down) cursor to move between the left hand menu items. The bottom of the screen will show the available keys for each screen. Press [Enter] at the menu item to enter the right hand screen for editing.

If you have made any changes, press [F10] to ensure the data is saved in Flash ROM.

On Board I/O Address & IRQ Maps

System Resource	IRQ	I/O Address
1. Timer	IRQ0	040~043
2. Keyboard	IRQ1	060~064
3. Programmable INT Controller	IRQ2	0020~0021, 00A0~00A1
4. COM2(B)	IRQ3	2F8~2FF
5. COM1(A)	IRQ4	3F8~3FF
6. Floppy	IRQ6	3F0~3F7
7. LPT1	IRQ7	378~37F
8. Real Time Clock	IRQ8	070~071
9. PS/2 Mouse	IRQ12	
10. Math coprocessor	IRQ13	0F0~0FF
11. IDE 1	IRQ14	1F0~1F7
12. IDE 2	IRQ15	170~177

✍ IRQ 5, 9, 10 and 11 will be available for other interface card.

📬 *Memo*

Quick Connector and Jumper Reference

Set the CPU type via BIOS :

CPU-type		CPU Power Voltage		System freq./Freq. ratio	
		I/O Vcc	Core Vcc	MHz	Speed rate
Intel	P54C-90	3.5		60	x1.5
	P54C-120				x2
	P54C-150				x2.5
	P54C-100			66	x1.5
	P54C-133				x2
	P54C-166				x2.5
	P54C-200				x3
	Pentium w/MMX 166MHz	3.3	2.8		x2.5
	Pentium w/MMX 200MHz				x3
	Pentium w/MMX 233MHz				x3.5
Cyrix /IBM	6x86-PR133⁺ @110MHz	3.5		55	x2
	6x86-PR150⁺ @120MHz			60	
	6x86-PR166⁺ @133MHz			66	
	6x86L-PR166⁺ @133MHz	3.3	2.8		
AMD	K5-PR90	3.5		60	x1.5
	K5-PR100			66	
	K5-PR120 @90MHz			60	x2
	K5-PR133 @100MHz			66	
	K5-PR150 @105MHz			60	x2.5
	K5-PR166 @116.7MHz			66	
	K6/PR2-200	3.3	2.9	66	x3

JP2: CPU cooling fan connector


```
o  — +12V
o  — GND
```

JP4: Open (reserved for factory)

JP7: Dual channel USB connector


```
         1        8
VCC   — o  o — VCC
CH1 DATA- — o  o — CH2 DATA-
CH1 DATA+ — o  o — CH2 DATA+
GND   — o  o — GND
         — o
```

JP8: Infrared connector


```
Vcc   — o
Ir-Rx — o
GND   — o
Ir-Tx — o
Vcc   — o
```
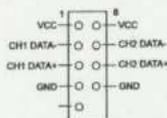
JP9: Clear CMOS data jumper
2~3 short : Normal (default)
1~2 short : Clear CMOS data

J12: Front panel connector set


```
CPU Overheat Alert LED — o o — Power Indicator LED
Green Switch — o o — KeyLock
Green LED — o o
           — o o — Speaker Connector
Reset Switch — o o
IDE Activity LED — o o — Over-ride Power Button
```

📬 *Memo*
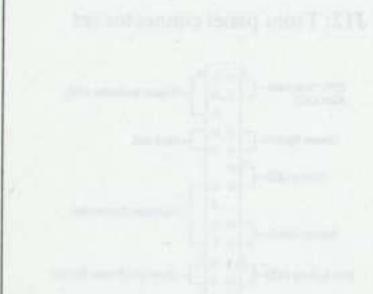
PART II German Edition

1-1 Technische Daten :

❑CPU

- Unterstützt die gesamte Palette der Intel Pentium® Prozessoren und Pentium®
  Prozessoren mit MMX-Technologie. Ist Ausgerichtet auf zukünftigen Intel
  OverDrive (P54CTB) Spezifikation.
- Unterstützt Cyrix/IBM 6x86™ und 6x86L™ PR120⁺ - PR166⁺ Prozessoren
  (Rev.2,7 oder spätere).
- Unterstützt AMD-K5™ PR75 - PR166 Prozessoren.
- Systemtakt 55/60/66/75 MHz
- 321 Pins ZIF Sockel 7
- Hocheffizientes Schaltnetzteil

  ❧ P55C ist der erste Intel Pentium® Prozessor, der auf der Technologie MMX™
  basiert, um Multimedia- und Kommunikationsprogramme zu beschleunigen.

  ⚠ Die Unterstützung des Systemtakts 75 MHz ist nur für OEM-Kunden.

- Innovative SeePU Technologie (erleichterte CPU-Installation über das BIOS-
  Setup)
- CPU-Temperaturüberwachung über APTC (Active Process Temperature
  Control).

❑Hauptspeicher

- Vier 72-Pin SIMM Sockel (mit SIMM-Modul 4/8/16/32 MB 32/36-bit 70-ns (oder
  schneller), 5V SIMM verwendbar)
- Zwei 168-Pin DIMM Sockel mit einer Spannung von 3,3V
- Unterstützt SDRAM/EDO/FPM-Speichermodul (DRAM)
- Maximal bis 256 MB bestückbar

❑Cachespeicher

- 512KB (64K*32x2) Pipelined Burst SRAM on Board.

❑I/O Slots

- 16-bit ISA Bus x 4
- 32-bit PCI BUS x 4 (Master Mode-fähig, PCT 2.1)

❑BIOS

- Award System BIOS
- 1 MB Flash ROM
- Unterstützt PnP, APM, DMI und Multi-Device (wie Floppy, IDE/SCSI, CD-ROM etc) Booteigenschaften
- Implementiertes SYMBIOS SCSI BIOS

❑Chipsatz

- Intel 82430TX (ZWEI-Chip PCI Set)

❑Boardintegrierte Super I/O Schnittstellen

- WB 977TF I/O Chip
- 1FD(bis zu 2,88MB, 3 Mode) + 2S(16550A-kompatibel) + 1P(SPP/ECP/EPP)
- Unterstützt IrDA IR Funktion bis 115.2 kbps

❑Zwei Ultra DMA-33 PCI IDE Festplatten-Schnittstellen

- Unterstützt PIO Mode 4, Multi-word DMA Mode 2 & Ultra DMA-33 timing
- Komplette Bus-Master-Treiber für die wichtigsten Multitask-Betriebssysteme.

❑Zweikanal USB-Anschluß

⚠️ Diese befinden sich noch für die unterschiedlichsten peripheren Geräte in der Testphase.

❑Größe

- Standard ATX-Format
- 305 mm x 220 mm, 4-layer PCB
- 8 Befestigungslöcher

❑Green PC

- Entspricht dem EPA Green PC Standard: Leistungsaufnahme unter 30 W in Doze, Stand-by oder Suspended Mode.

❑Fortschrittliches Power-Management

- Software Power Control, automatisches Einschalten bei Modem-Aktivitäten etc.

1-2 Produktkomponenten

Dieses Produkt wird zusammen mit den folgenden Komponenten geliefert:

❏ Hauptplatine
❏ 40-Pin IDE Flachband-Kabel (Abb. 1-1)
❏ 34-Pin Flachband-Kabel für Floppydiskettenlaufwerk (Abb. 1-2)
❏ Benutzerhandbuch
❏ Diskette mit Flash EPROM Utility und Bus Master IDE Treibern.

IDE-Kabel

Abb. 1-1

Floppy-Kabel

Abb. 1-2

1-3 Einstellung der CPU-Parameter durch SeePU-Technologie

SeePU ist eine neue anwenderfreundliche Technologie, die dem Anwender ermöglicht, die CPU-Parameter des Mainboards durch ein einfach zu bedienendes BIOS-Setup einzurichten. Es ist nicht mehr nötig, Jumper zu setzen, wie auf konventionellen Mainboards.

1. Nachdem die gesamte Hardware in Ihrem PC installiert ist, schalten Sie Ihren Rechner ein. Direkt nach dem Startvorgang drücken Sie bitten die [Entf]-Taste wodurch Sie in das BIOS-Setup Menü gelangen.
2. Um Ihre CPU einzurichten, bewegen Sie den Cursor zur Option **"SeePU & Chipset Features Setup"** und drücken Sie die Eingabe-Taste (Abb. 1-3). Die jeweiligen Befehle um den Curor im BIOS zu bewegen, befinden sich auf dem unteren Teil des Bildschirms.
3. Es gibt zwei verschiedene Methoden, die CPU-Parameter im SeePU-Menü einzustellen:
   a. Belassen Sie die "User's favorite"-Funktion bei "Disabled" (unaktiviert, Grundeinstellung) und stellen Sie die korrekte Busgeschwindigkeit ein, siehe Abb. 1-4). Bei dieser Methode, stellt SeePU 3,3V für Einfach-Spannungs-CPUs und 2,8V/3.3V für Dual-Spannungs-CPUs ein.
   b. Aktivieren Sie die "User's favorite"-Funktion ("Enabled") und stellen Sie die korrekte "Core Voltage" (Kernspannung), "CPU Bus Frequency" (CPU Bus Frequenz) und "Frequency Ratio" (Frequenz-Multiplikator), siehe Abb. 1-5. Die korrekten Einstellungen für alle gängigen CPU-Typen finden Sie auf der Abb. 1-6.
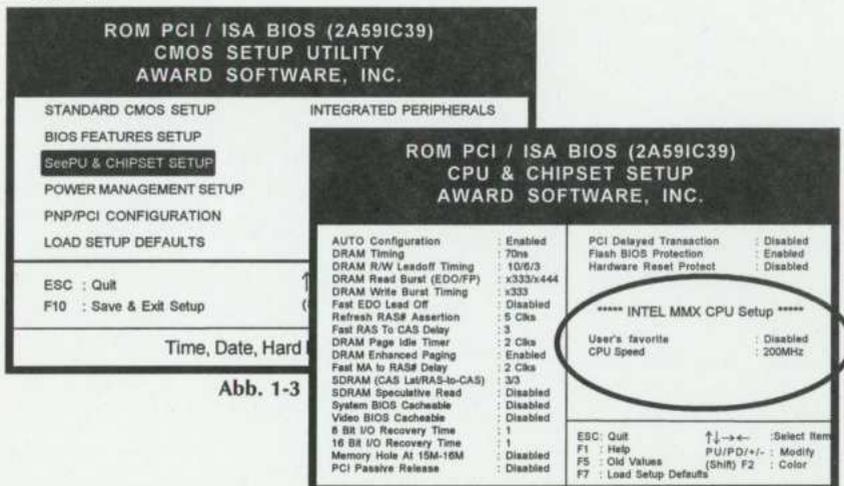

Abb. 1-3

Abb. 1-4

4. Drücken Sie [Esc]-Taste, um zum Hauptmenü zurückzukehren. Zum Speichern er Einstellungen drücken Sie die [F10] Taste oder wählen Sie "Save and Exit Setup". Zum Abschluß drücken Sie zur Bestätigung "(z)".

Nun startet das System neu und die eben vorgenommen Einstellungen werden auf dem Bildschirm angezeigt.


```
          ROM PCI / ISA BIOS (2A59IC39)
              CPU & CHIPSET SETUP
             AWARD SOFTWARE, INC.

AUTO Configuration        : Enabled      PCI Delayed Transaction   : Disabled
DRAM Timing               : 70ns         Flash BIOS Protection     : Enabled
DRAM Leadoff Timing       : 10/6/3       Hardware Reset Protect    : Disabled
DRAM Read Burst (EDO/FP)  : x333/x444
DRAM Write Burst Timing   : x333
Fast EDO Lead Off         : Disabled     *** INTEL MMX CPU Setup *****
Refresh RAS# Assertion    : 5 Clks
Fast RAS To CAS Delay     : 3            User's favorite          : Enabled
DRAM Page Idle Timer      : 2 Clks
DRAM Enhanced Paging      : Enabled      Core Voltage (V)         : 2.8
Fast MA to RAS# Delay     : 2 Clks       CPU Bus Frequency        : 66MHz
SDRAM (CAS Lat/RAS-to-CAS): 3/3          Frequency Ratio          : x2.5
SDRAM Speculative Read    : Disabled
System BIOS Cacheable     : Disabled
Video BIOS Cacheable      : Disabled
8 Bit I/O Recovery Time   : 1            ESC: Quit        ↑↓→←      :Select Item
16 Bit I/O Recovery Time  : 1            F1 : Help        PU/PD/+/- : Modify
Memory Hole At 15M-16M    : Disabled     F5 : Old Values  (Shift) F2 : Color
PCI Passive Release       : Disabled     F7 : Load Setup Defaults
```
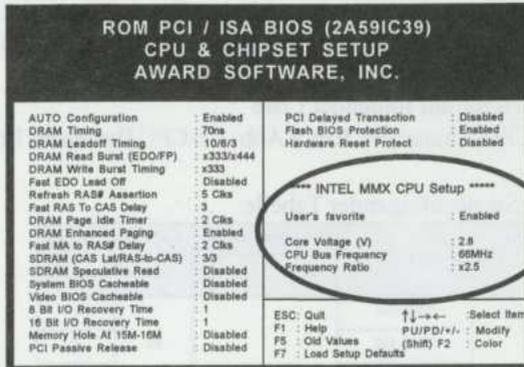
Abb. 1-5

CPU-Frequenz

Falls falsche CPU-Parameter eingestellt wurden, sodaß der Computer nicht starten kann, ändert das BIOS die CPU-Konfiguration automatisch auf 83 oder 110Mhz. Beachten Sie bitte, daß das BIOS dieselben Änderungen vornimmt, wenn Sie die CPU gewechselt haben.

Überprüfen Sie die CPU-Frequenz in der Konfiguration, die während des Systemstarts auf dem Bildschirm angezeigt wird. Wenn ein falscher Wert angezeigt wird, drücken Sie die [Del]-Taste, um ins BIOS-Setup Menü zu gelangen und die korrekten CPU-Parameter einzustellen.

Overclocking

Das Betreiben der CPU auf einer höheren Frequenz als in der Spezifikation angeben, bezeichnet man als Overclocking. Dabei besteht die Möglichkeit, daß die CPU nicht auf der eingestellten Frequenz läuft; abhängig von der Qualität der CPU und dem Ausmaß des Overclockings.

Der Hersteller dieses Mainboards rät schwer von Overclocking ab, da dies zu Datenverlust, CPU-Überhitzung, Systemabstürzen, etc. führen kann.

CPU Spannung

Zwei Arten von Prozessoren sind im allgemeinen Gebrauch. Konventionelle Einfach-Spannungs-Designs wie die Pentium, AMD-K5 und Cyrix 6x86 CPUs werden mit einer Spannung von 3,3V bzw. 3.5V sowohl im Kern als auch im I/O Bereich betrieben.

Dual-Spannungs-CPUs wie Pentium mit MMX-Technologie, AMD-K6 und Cyrix 6x86L Prozessoren verwenden verschiedene Spannungswerte für den Kern und den I/O-

Bereich. Für den Kern kann man zwischen 2,8V / 2,9V und 3.2V wählen, während für den I/O-Bereich fix 3.3V eingestellt wird.

⚠ Die Onboard Leistungs-Schaltmodule können automatisch zwischen diesen beiden Prozessor-Typen unterscheiden. Eine Schutzschaltung verhindert eine falsche Einstellung. Im Falle einer falschen Einstellung wählt das System die Grundstellung von 3.3V für Einfach-Spannungs-CPUs und 2.8V / 3.3V für Dual-Spannungs-CPUs.

Details finden Sie auf folgender Liste

Figure 1-6 CPU Parameter Chart = Abb. 1-6 CPU Parameter Liste

Details entnehmen Sie nachfolgender Tabelle:

CPU-type		CPU Power Voltage		System freq./Freq. ratio	
		I/O Vcc	Core Vcc	MHz	Speed rate
Intel	P54C-90	3.5		60	x1.5
	P54C-120				x2
	P54C-150				x2.5
	P54C-100			66	x1.5
	P54C-133				x2
	P54C-166				x2.5
	P54C-200				x3
	Pentium w/MMX 166MHz	3.3	2.8		x2.5
	Pentium w/MMX 200MHz				x3
	Pentium w/MMX 233MHz				x3.5
Cyrix /IBM	6x86-PR133 + @110MHz	3.5		55	x2
	6x86-PR150 + @120MHz			60	
	6x86-PR166 + @133MHz			66	
	6x86L-PR166 + @133MHz	3.3	2.8		
AMD	K5-PR90	3.5		60	x1.5
	K5-PR100			66	
	K5-PR120 @90MHz			60	x2
	K5-PR133 @100MHz			66	
	K5-PR150 @105MHz			60	x2.5
	K5-PR166 @116.7MHz			66	
	K6/PR2-200	3.3	2.9	66	x3

Abb. 1-6

Anschlußleiste für die Bedien- und Anzeigeelemente des Gehäuses (J12)
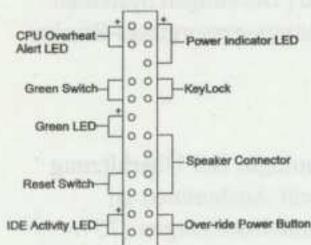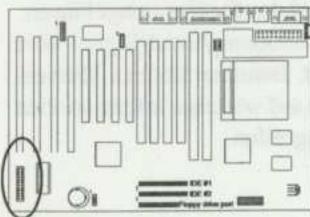
Over-ride Power-Tasten-Anschluß

Ein ATX-Gehäuse verfügt über eine Hardware-Power-Taste an der Vorderseite. Wenig Kraft ist nötig, um das System an- / auszuschalten. Einmaliges Drücken der Taste schaltet das System zwischen dem Full-on und dem Sleep-Modus um. Wird die Taste länger als vier Sekunden gedrückt, während sich das System im Full-on-Zustand befindet, schaltet das System in den Soft-Off-Modus um, und die Power-LED verlöscht.

Im Soft-Off-Modus wird durch Drücken der Power-Taste das System zum Full-On-Zustand rebootet.

⊱ Was ist die **Soft Power-Off** Kontrollfunktion in Windows 95?

Klicken Sie auf die Schaltfläche **Start** auf der Windows 95 Task-Leiste, und wählen sie **Beenden.../Windows herunterfahren**. Das System schaltet sich aus.

> ⚠ Die Meldung **"Sie können jetzt Ihren Computer ausschalten"** wird NICHT gezeigt, wenn die Soft Power-Off Kontroll-Funktion verwendet wird.

⊱ Wie wird die **Soft Power-Off** Kontrollfunktion in Windows 95 ermöglicht?

Zuerst wird die Power Management Funktion im Power Management Setup auf "enable" gestellt. Als zweites wird die APM Funktion in Windows 95 aktiviert.

1. Gehen Sie zum Advanced Power Management Symbol in der Systemkomponenten-Liste (Arbeitsplatz/Systemsteuerung/System/Geräte-Manager/Systemkomponenten)
2. In der Registerkarte **Einstellungen** klicken Sie auf **Force APM 1.0 mode**.

&. Was ist die **Modem Anruf** Funktion?
Im Soft-off Modus wird das System ochgefahren,
während ein externes Modem Anruf-Signal über
den COM Port eingeht. Benutzer können über ein
Modem von außerhalb auf wichtige Informationen
auf ihrem Computer zugreifen.

CPU Kühler Anschluß (JP2)
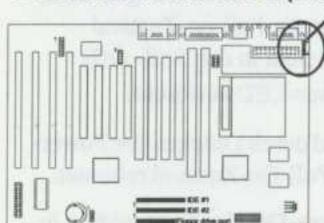
Die Spannungsversorgung des CPU-Lüfters sollte
über diesen Anschluß erfolgen, damit hierfür kein
Netzteilstecker belegt wird (Bei einigen Systemen
sind alle Laufwerksspannungs-versorgungs-Stecker
in Gebrauch).

&. *ATPC* (Active Processor Temperatur Control) Technologie Bei Überhitzung
kann die CPU ihre Geschwindigkeit reduzieren, um ein Ausbrennen zu
verhindern. Wenn die CPU Temperatur über die Grundeinstellungen (75+/-
10°C) steigt, ertönt ein Warnsignal.

Im Stand-by Modus stoppt der CPU-Lüfter automatisch, um die
Geräuschbelästigung und den Stromverbrauch zu verringern.

Infrarot Verbindung (JP8)
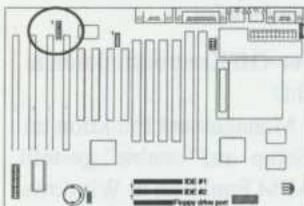
Falls Sie im BIOS den "Onboard IR Controller"
aktivieren, wird der COM2 Port die IR Funktionen
unterstützen.
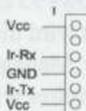
&. **Änderung der CPU Geschwindigkeit mit Hilfe der Tastatur**
Durch Drücken der fogenden Tastenkombination kann die CPU-Taktrate geändert
werden, d.h. turbo/nicht-turbo, zu ändern.
CTRL-ALT-"-":   auf "langsam" gesetzt
CRTL-ALT-"+":   auf "schnell" gesetzt (turbo)

Jumper zum Löschen der CMOS-Daten (JP9)
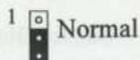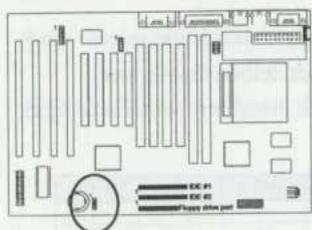
1 □ Normal   1 ■ CMOS Daten löschen

⚠ Um den Inhalt vom CMOS zu löschen, befolgen Sie bitte folgende Schritte.

1. Das System abschalten.
2. Jumpern Sie JP9 auf die Position 1-2 für mindestens 5 Sekunden, dann setzen Sie den Jumper zurück auf die Position 2-3.
3. Starten Sie das System erneut.

1-4 Hauptspeicher-Konfiguration

Das Speichersystem für DRAM besteht aus 3 Bänke. Die Speichergröße reicht von 8 bis 256 MB. Es müssen immer jeweils zwei SIMM odule der selben Größe und Zugriffszeit, entweder ein- oder doppelseitig, in einer Bank installiert sein. Es ist egal, welche Bank zuerst installiert wird.

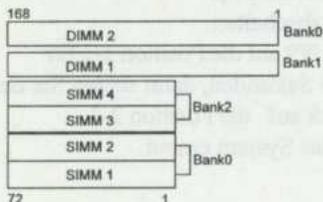| SIMM1,2	SIMM3,4	DIMM1	DIMM2
S/S	---	---	---
S/S	S/S	---	---
S/S	D/S	---	---
---	S/S	---	---
D/S	---	---	---
D/S	S/S	---	---
D/S	D/S	---	---
---	D/S	---	---
---	---	S/S	---
---	---	S/S	S/S
---	---	S/S	D/S
---	---	---	S/S
---	---	D/S	---
---	---	D/S	S/S
---	---	D/S	D/S
---	---	---	D/S

S/S - einseitig
D/S - doppelseitig
"---"- nicht belegt

DRAM-Spezifikationen:

unterstützte DRAM Typen - FP (Fast Page), EDO (Extended Data Output) & Synchronous Typ DRAM

benötigte DRAM Geschwindigkeit - FP/EDO: 70-ns (oder schneller) für Systemtakt 50 oder 60 MHz, 60-ns für Systemtakt 66 MHz.

SDRAM: 10/12-ns

DRAM Modul Typen & Größe: 4/8/16/32/64 MBytes, ein-/doppelseitig, 5V SIMM 8/16/32/64 MBytes, ein-/doppelseitig, 3.3V DIMM

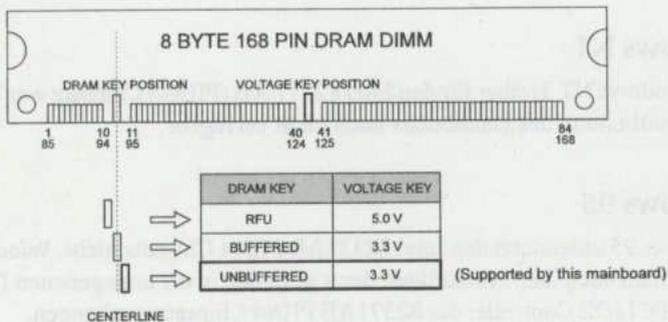Parität: Es werden Speicher-Module mit und ohne Paritäts-Chip unterstützt.

⚠ Die meisten SDRAMs benötigen eine Spannungsversorgung von 3.3V (SDRAM I/O sind nicht 5V kompatibel). Die gemeinsame Nutzung 3.3V SDRAMDIMM und 5V EDO7FPM SIMM ist ausgeschloßen.

⚠ Da die 64MB SIMM/DIMM noch nicht weit auf dem Markt verbreitet sind, kann die Kompatibilität zu diesen Typen nicht gewährleistet werden.

&. **Auf dieser Platine können nur DIMM-Bausteine vom Typ 3.3V ungepuffer verwendet werden**

Diese Platine mit zwei DIMM (Dual In-line Memory Modul) Fassungen zur Unterstützung ungepufferter SDRAM DIMM Modulen hat ein optimiertes Lesetiming (7-1-1-1) im Vergleich zu Platinen mit traditionellen DRAMs. SDRAM Bausteine werden in Kürze als neuer Modulstandard die herkömmlichen SIMMs ersetzen und damit den 64-bit-Standard im Speicherbereich etablieren. Erst vor kurzem hat das JEDEC-Komitee die technischen Spezifikationen für ungepufferte DIMM-Module herausgegeben und damit den Grundstein für einen höheren Datentransferstandard gelegt. Ungepufferte DIMMs können SDRAM, BEDO, EDO und FP DRAM-Chips mit Pinbelegungen zu x64, x72 mit Parität, x72 mit ECC und x80 ECC aufnehmen.

⚠ Das ungepufferte DIMM-Modul unterscheidet sich durch eine Einbuchtung rechts der Mittellinie, gezeigt in der folgenden Abbildung.

8 BYTE 168 PIN DRAM DIMM

DRAM KEY POSITION   VOLTAGE KEY POSITION

DRAM KEY	VOLTAGE KEY	
RFU	5.0 V	
BUFFERED	3.3 V	
UNBUFFERED	3.3 V	(Supported by this mainboard)

CENTERLINE

1-5 Installation des Bus Master/PIO IDE Treibers

⚠️ Diese Platine bietet zwei E-IDE (Enhanced IDE) Anschlüsse. An beiden
können jeweils zwei Geräte (Festplatten und CDROM-Laufwerke) betrieben
werden können. Wir empfehlen die EIDE-Festplatte auf IDE-1 (Primär-Kanal)
und das ATAPI-CDROM auf IDE-2 (Sekundär-Kanal) zu legen.

⚠️ Wenn Sie ein zweites E-IDE Laufwerk installieren, kann es zu Schwierig-
keiten kommen, da einige Laufwerks-Modelle nicht mit anderen auf dem
gleichen Bus zusammenarbeiten können. In solchen Fällen können Sie
versuchen, die Master-Slave Konfiguration zu ändern, oder ein Laufwerk
auf den zweiten E-IDE-Kanal setzen.

✎ Um die Leistung des CD-ROM Laufwerks zu optimieren, sollte SmartDrive
(Version 5.0 oder aktueller) geladen werden.
Es empfiehlt sich den CD-ROM-Treiber und MSCDEX **vor** SmartDrive zu
laden..

1.Windows NT

Der Windows NT Treiber für den Intel 82371 AB (PIIX4) Chipsatz war bei
Veröffentlichung des Handbuchs noch nicht verfügbar.

2.Windows 95

Windows 95 unterstützt den Intel 82371AB PIIX4 Chipsatz nicht. Windows 95
OSR2 kann nach dem Hinzufügen der u.g. Zeilen in die angegebenen Dateien den
dualen PCI IDE Controller des 82371AB PIIX4 Chipsatzes erkennen.

C:\WINDOWS\INF\MSHDC.INF

[INTEL_HDC]
%PCI\VEN_8086&DEV_7111.DeviceDesc%=DUAL_GOOD_IDE,,PCI\VEN_
8086&DEV_7111

[CONTROLFLAGS]
CopyFilesOnly=PCI\VEN_8086&DEV_7111

[STRINGS]
PCI\VEN_8086&DEV_7111.DeviceDesc="Intel 82371 AB PCI Bus Master IDE Controller"

C:\WINDOWS\INF\MACHINE.INF

Bitte bachten: jede HKLM Zeile nicht durch die Eingabetaste bestätigen.

[PCI_DRV_AddReg]

HKLM,System\CurrentControlSet\Services\VxD\PCI,71118086,1,04,00,00,00

HKLM,System\CurrentControlSet\Services\VxD\PCI\IRQMiniports\71118086,Name"
"Intel 82371AB"

HKLM,System\CurrentControlSet\Services\VxD\PCI\IRQMiniports\71110806,Path,
"PCIMP.PCI"

HKLM,System\CurrentControlSet\Services\VxD\PCI\IRQMiniports\7111080806,
Instance,1,01,00,00,00

3. OS/2 und WARP 3.x

1) Das Installationsprogramm (SETUP.EXE) im Laufwerk A (oder B) Verzeichnis
   OS2 ist auszuführen: A(B):\OS2
   Nach dem Ausführen von SETUP.EXE, kopieren Sie PIIXIDE.ADD und
   PIIXIDE.FLT in das OS/2 Verzeichnis in dem Boot-Laufwerk.

2) Nehmen Sie folgende Änderungen in der CONFIG.SYS Datei vor:
   Ersetzen Sie: mit:
   BASEDEV=IBM1S506.ADD   BASEDEV=PIIXIDE.ADD

   Ersetzen Sie: mit:
   BASEDEV=IBMIDECD.FLT   BASEDEV=PIIXIDE.FLT

3) Beenden Sie und rebooten Sie das System.

⋐ PIIXIDE.ADD wird automatisch DMA fähige Festplatten erkennen und sie und
  den Intel PCI Chip-Satz für den Bus Master DMA Transfer konfigurieren.
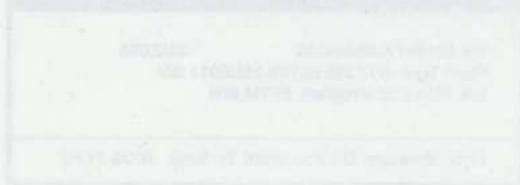
1-6 Update des System-BIOS

Das Flash ROM-BIOS erlaubt dem Benutzer eine Aktualisierung ohne Austausch von Komponenten.

⚠️ **Vor** der Ausführung des Programms sind alle installierten Speicher-Manager (wie EMM386.EXE, QEMM.EXE usw.) zu entfernen.

1. Die Flash Utility Diskette ist in Laufwerk A (oder B) einzuschieben.

2. Am DOS Prompt das Flash-Utility Programm starten, z.B. Flash52c.exe.

3. Auf dem Bildschirm erscheint:

```
          FLASH MEMORY WRITER V5.33C
     Copyright   (C) 1996, Award Software, Inc.

   For 82430TX-2A59IC39              03/22/95
   Flash Type - STT 28EE010 & 28EE011 /5V
   File Name to Program:

   Error Message:
```
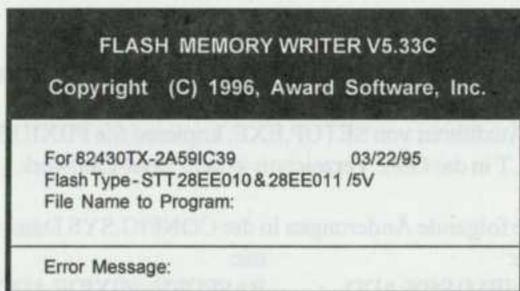
4. BIOS-Dateiname eingeben. Von Ihrem Verkäufer oder aus Mailbox und Internet erhalten Sie die geeignete freigegebene BIOS-Datei (*.BIN).

5. Falls die alten BIOS Daten nicht auf Diskette gespeichert werden sollen, ist "N" einzugeben.

```
          FLASH MEMORY WRITER V5.33
     Copyright   (C) 1996, Award Software, Inc.

   For 82430TX-2A59IC39              03/22/95
   Flash Type - STT 28EE010 & 28EE011 /5V
   File Name to Program 5TTM.BIN

   Error Message: Do You Want To Save  BIOS (Y/N)
```

Falls die alten BIOS Daten auf Diskette gespeichert werden sollen, ist "Y" einzugeben.

```
┌─────────────────────────────────────────────┐
│     FLASH MEMORY WRITER V5.33                 │
│   Copyright  (C) 1996, Award Software, Inc.   │
│                                               │
│                                               │
│   For 82430TX-2A59IC39            03/22/95    │
│   Flash Type - STT 28EE010 & 28EE011 /5V      │
│   File Name to Program 5TTM.BIN               │
│   Now Backup System BIOS to BIOS. Old file!   │
│                                               │
│   Error Message: Please Wait !                │
└─────────────────────────────────────────────┘
```

6. Starten der Flash-BIOS-Programmierung durch die Eingabe "Y".

```
┌─────────────────────────────────────────────┐
│     FLASH MEMORY WRITER V5.33                 │
│   Copyright  (C) 1996, Award Software, Inc.   │
│                                               │
│                                               │
│   For 82430TX-2A59IC39            03/22/95    │
│   Flash Type - STT 28EE010 & 28EE011 /5V      │
│   File Name to Program 5TTM.BIN               │
│                                               │
│   Error Message: Are You Sure To Program (Y/N)│
└─────────────────────────────────────────────┘
```

7. Wenn die BIOS-Programmierung beendet ist, ist ein Hardware-Reset durchzuführen.

```
┌─────────────────────────────────────────────┐
│     FLASH MEMORY WRITER V5.33                 │
│   Copyright  (C) 1996, Award Software, Inc.   │
│                                               │
│                                               │
│   For 82430TX-2A59IC39            03/22/95    │
│   Flash Type - STT 28EE010 & 28EE011 /5V      │
│   File Name ot Program 5TTM.BIN               │
│   Programming Flash memory - OK               │
│   ████████████████████████████ ██ ████ █      │
│   Error Message: Please Power Off Or Reset System !│
└─────────────────────────────────────────────┘
```

8. Laden der Default-Werte im BIOS-Setup.

1-7 DMI Utility

DMI (Desktop Management Interface) ist eine neue Methode, Computer in einem Firmennetzwerk zu managen. Der Hauptteil von DMI ist die MIFD (Management Information Format Database). Diese Datenbank enthält alle Informationen über das Computersystem und seine Bestandteile. Mit DMI hat ein Systemadministrator Zugang zu Typen, Fähigkeiten, Betriebsstatus, Instllationsdaten und andere Informationen über die Systemkomponenten.

Die DMI-Funktion ist im BIOS implementiert. Mit einem DMI-Utility-Programm (Diskette) kann die MIFD-Datei manuell konfiguriert werden.

Das System BIOS nutzt die Plug&Play Technologie, um ein dynamisches Updating in Echtzeit der System-Informationen zu ermöglichen und diese (z.B. CPU-Typ und Zugriffzeit, Busfrequenz, Speichergröße und Geschwindigkeit) im Flash EPROM der Hauptplatine zu speichern.

Das anwenderfreundliche DMI Utility (DMICFG.EXE) ermöglicht dem Systemintegrator oder Endbenutzer alle erforderlichen Informationen wie z.B. die Seriennummer der Hauptplatine, Monitor usw. im MIFD zu speichern. Diese Information wird nicht vom System BIOS erkannt und muß manuell durch das DMI Utility eingegeben werden.

Das DMICFG.EXE (DMI Konfigurations-Utility zur Modifikation und Übersicht des MIFD) ist auf der Treiberdiskette enthalten, die Ihrer Hauptplatine beiliegt.

⚠️ Bitte entfernen (oder umbenennen) Sie alle Speichermanagement-Programme (wie z.B.: EMM386.EXE, QEMM.EXE usw.) in der CONFIG.SYS Datei, bevor Sie dieses Programm starten.

Geben Sie A: DMICFG ein, und folgender Bildschirm erscheint:

```
Award DMI Configuration Utility v1.08u, Copyright Award Software Inc. 1996
[Edit DMI]  [Add DMI]  [Load DMI FILE]  [Save DMI FILE]

        BIOS                    ==  Display Component  ===
       System
  Enclosure/Chassis      Type : BIOS Information
      Processor          Handle : 0000
  Memory Controller      Vendor Name : Award software International, Inc.
   Memory Module         BIOS Version : 4.51 PG
   Memory Module         BIOS Starting Address Segment : E000
   Memory Module         BIOS Build Date : 08/22/96
   Memory Module         BIOS Characteristics : Press [Enter] for detail
       Cache             Size of BIOS ROM : 0128K
       Cache
   Port Connector
   Port Connector
   Port Connector
   Port Connector
   Port Connector
   Port Connector
   Port Connector
   System Slots
   System Slots
```

Bewegen Sie den Cursor Taste(↑↓), um die Optionen des oberen Menüs zu wählen, und die Taste (←→), um die Optionen im linken Menü zu erreichen. Der untere Rand des Bildschirms zeigt die verfügbaren Tasten für jeden Bildschirm. Drücken Sie EINGABE am Menüpunkt, um in den rechten Bearbeitungsschirm zu wechseln.

Nachdem Sie Änderungen vorgenommen haben, drücken Sie F10, um die Daten im Flash ROM zu speichern.

📫 *Memo*

Fax to : 886-2-248-3009 Chaintech Computer CO., LTD

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5TTM User's Manual
P/N   : 9411720020
Code : 5TTM0.2

Your feedback will help us to improve the quality of our product and publications.
Thank you very much your assistance.

I rate this manual :	Excellent	Good	Fair	Poor
Accuracy (product works as manual says)	☐	☐	☐	☐
Completeness (enough information)	☐	☐	☐	☐
Clarity (easy to read)	☐	☐	☐	☐
Organization (structure of subject matter)	☐	☐	☐	☐
Figures (enough and useful)	☐	☐	☐	☐
Index (ability to find topic)	☐	☐	☐	☐

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