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■ Table Of Contents

Chapter 1

Introduction

| | |
|--|---|
| 586F62 Mainboard Features | 4 |
| Static Electricity Precautions | 6 |
| 586F62 Mainboard Layout | 7 |
| 586F62 Mainboard Jumper & Connector Location | 8 |

Chapter 2

Hardware Guide

| | |
|--|----|
| Setting Jumpers | 9 |
| CPU Bus Clock Selection | 9 |
| CPU Core to Bus Clock Ratio Selection | 9 |
| CPU Voltage Selection | 10 |
| Intel Pentium CPU Clock Jumper Setting | 11 |
| Cyrix 6x86 CPU Clock Jumper Setting | 11 |
| Cache Memory Selection | 12 |
| CMOS RAM Clearance | 14 |
| Attaching Connectors | 14 |
| Front Panel Connectors | 14 |
| I/O Port Connectors | 15 |
| Cable Set | 16 |
| Power Supply Connector | 16 |
| Voltage Regulator Module (VRM) | 16 |
| PS/2 Mouse Connector | 18 |
| USB Connector | 18 |
| Installing System Memory | 18 |

Chapter 3

Software Guide

Software Setup.

| | |
|--------------------------|----|
| Running AWARD BIOS | 22 |
| CMOS SETUP UTILITY | 23 |
| STANDARD CMOS SETUP | 24 |
| IDE HDD AUTO DETECTION | 27 |
| LOAD SETUP DEFAULTS | 27 |
| SAVE & EXIT SETUP | 28 |
| EXIT WITHOUT SAVING | 28 |
| HDD LOW LEVEL FORMAT | 28 |
| BIOS FEATURES SETUP | 29 |
| CHIPSET FEATURES SETUP | 32 |
| POWER MANAGEMENT SETUP | 33 |
| PNP / PCI CONFIGURATION | 36 |
| INTEGRATED PERIPHERALS | 39 |
| SUPERVISOR/USER PASSWORD | 41 |

1 Introduction

586F62 Mainboard Features

The 586F62 is a high performance, function enhanced computer Mainboard that combines the power of Pentium Class CPU and the PCI Local bus. The features integrated onto the 586F62 Mainboard are as follows:

- . **CPU:** Supports the following CPUs in a ZIF socket.
 - Intel Pentium P54C/P54CT/P54CTB/P55C - 75/90/100/120/133/150/166/180/200+ MHz with VRM and Socket 7.
 - AMD 5k86
 - Cyrix 6x86
- . **Chipset:** Intel 82430HX Chipset.
- . **Cache Memory:** Supports Synchronous Pipelined Burst SRAM, 256KB or 512KB Cache Memory.
- . **Main Memory:**
 - 72-Pin DRAM SIMM modules in multiple configurations up to 512MB.
 - Supports Fast Page Mode and Extended Data Output (EDO) SIMMs.
 - Supports Symmetric and Asymmetric SIMMs.
 - Supports Parity or ECC Memory.

Note: ECC Stands for Error Check and Correction, it will automatically correct single bit error and check for multi-bit errors.
- . **On-Board I/O:**
 - 32-bit enhanced PCI IDE controller with two connectors supports four IDE devices in two channels. The controller supports both PIO and Bus Master IDE, up to Mode 4 timing with transfer rates to 22 MB/Second.

- Supports two 16550 Compatible high speed serial ports, one standard/ECP/EPP bidirectional parallel port, and one floppy disk controller.
- Supports one IrDA Compatible infrared port for infrared communication. (Reserved).
- Supports two Universal Serial Bus (USB) ports. (Reserved)

. Slots:

- Four 16-bit ISA and three 32-bit Bus Master PCI expansion slots.

. Keyboard / Mouse:

- Provides Standard Keyboard connector for AT type keyboard and 6-pin header for PS2 mouse interface.
- PS2 Keyboard connector and PS2 Mouse connector are optional.

. BIOS:

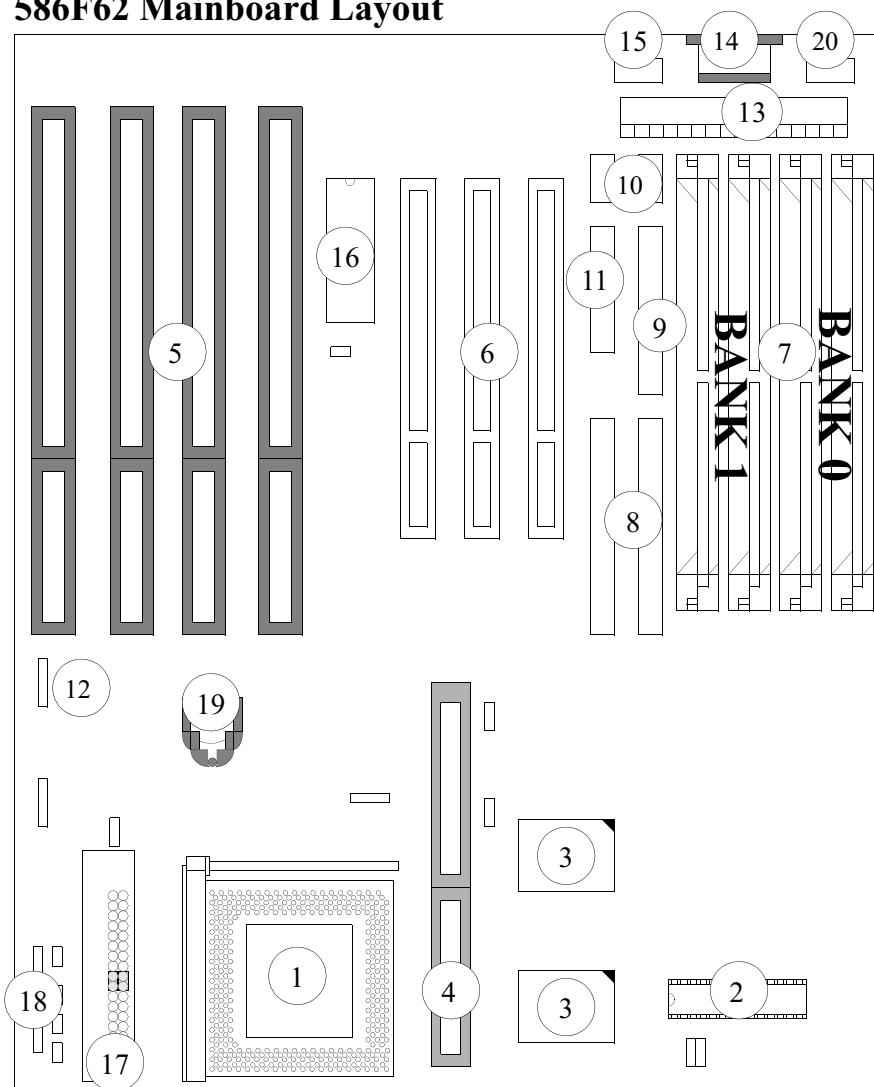
- AWARD Pentium PCI BIOS.
- Flash with ESCD (Extended System Configuration Data) block to fully support Plug and Play.
- Supports Power Management, Plug and Play, and Enhanced IDE Devices.
- Built-in NCR SCSI BIOS firmware to support the NCR 53C810 PCI Fast SCSI controller.

Static Electricity Precautions

Before removing the Mainboard from its anti-static bag, you need to eliminate any static electricity that may be accumulated on your body. The charge that can build up in your body may be more than enough to damage integrated circuits on the system board. Therefore, it is important to observe basic precautions whenever you handle or use computer components. Although areas with humid climate are much less prone to static build-up, it is best to always safeguard against accidental damage that may lead to costly repairs. The following measures should be sufficient to protect your equipment from static discharge:

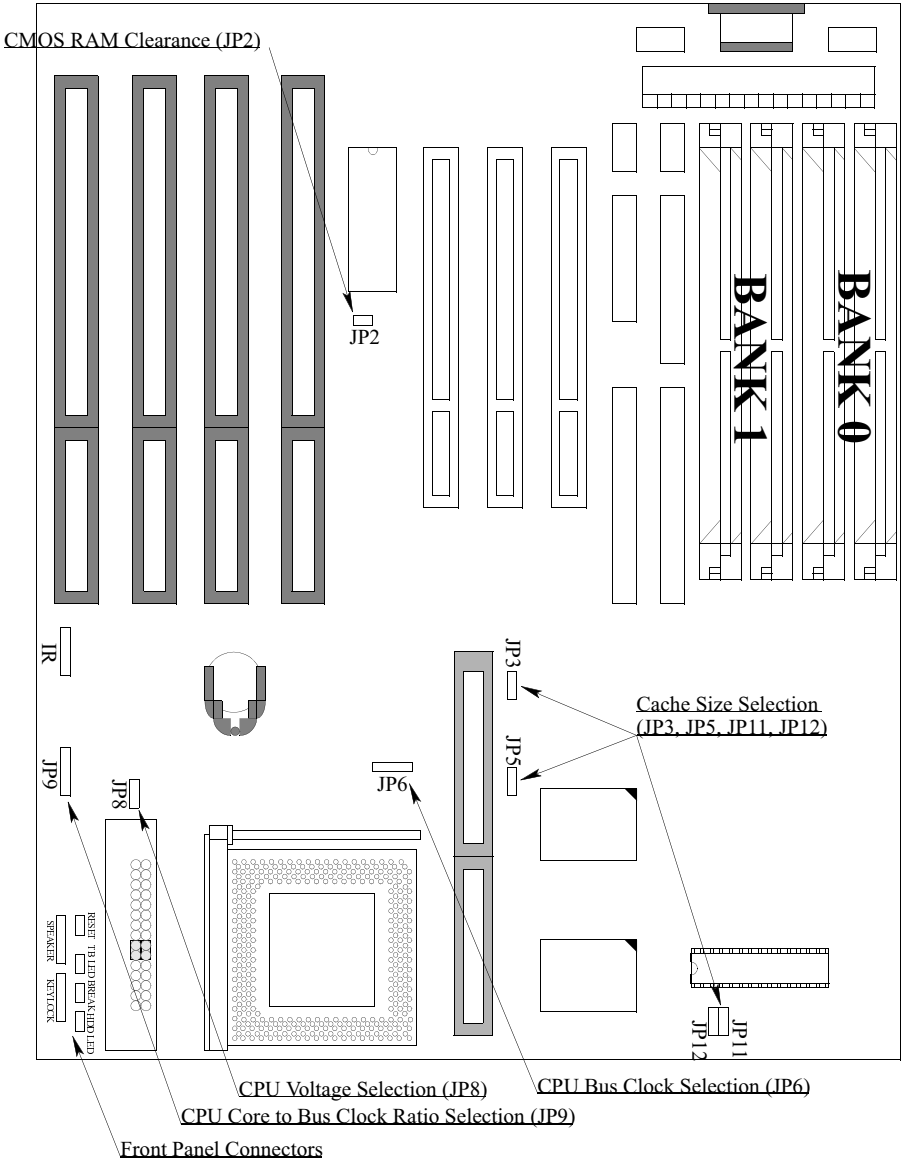
- After removing the system cover, discharge any static electricity that might have accumulated in your body by touching a grounded or anti-static surface (e.g. anti-static pads or using a grounding wrist strap). If nothing is available, touch the power supply housing. This assumes the system unit is plugged into the AC outlet. Be certain to do this before removing components from their anti-static coverings.
- When handling separate cards, boards or modules, be cautious to avoid contacting with the components on them, and also with the “gold finger” connectors that plug into the expansion slot. It is best to handle them either by their edges or by mounting brackets that attach to the slot opening in the system cases. However, the above recommendation are just intended to avoid the static discharge problem.
- Make certain that everything connects to the system case, including the power supply, is unplugged before doing the installation work.

586F62 Mainboard Layout



- | | | |
|-----------------------|---------------------------|-----------------------------|
| 1:CPU | 8:IDE Connectors | 15: PS/2 Mouse Header |
| 2:TAG SRAM Chip | 9:Floppy Drive Connector | 16: BIOS ROM |
| 3:Cache SRAM Chips | 10:Serial Port Connectors | 17:VRM Header |
| 4:Cache Slot | 11:Paralle Port Connector | 18:Front panel Connectors |
| 5:ISA Expansion Slots | 12:IR Port Connector | 19:Battery (CR2032 Lithium) |
| 6:PCI Expansion Slots | 13:Power Connector | 20:USB Header |
| 7:SIMM Module Sockets | 14:Keyboard Connector | |

586F62 Mainboard Jumper & Connector Location



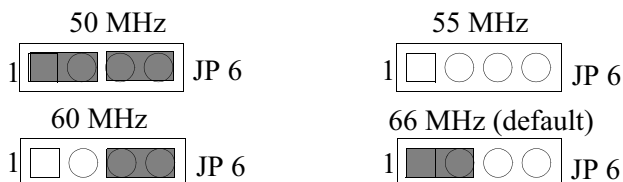
2 Hardware Guide

To install the Mainboard you need to set jumpers, attach connectors and install SIMM memory modules.

Setting Jumpers

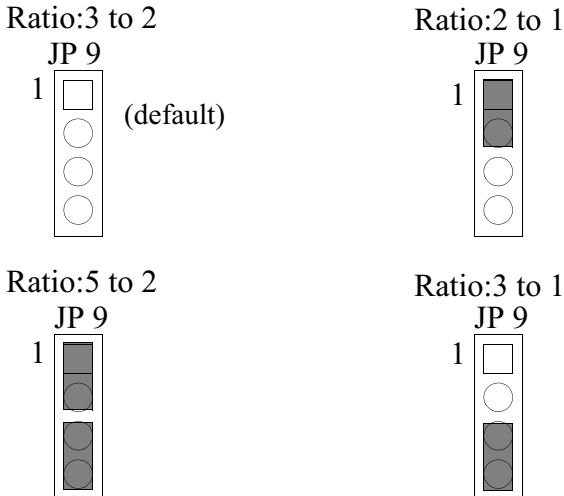
. CPU Bus Clock Selection (JP6)

This jumper selects different CPU Bus Clock.



. CPU Core to Bus Clock Ratio Selection (JP9)

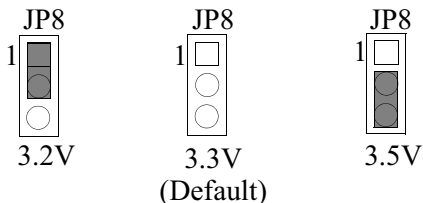
This jumper selects different CPU core to bus clock ratio.



The actual core frequency of CPU is the CPU bus clock frequency multiply by Core/Bus ratio. For example, if the CPU bus clock frequency is 66.6MHz and the Core/Bus ratio is 3 to 2, the actual CPU core frequency will be $66.6 \times 3/2 = 100\text{MHz}$.

. CPU Voltage Selection (JP8)

This jumper selects different voltages for the CPU.




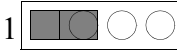

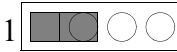
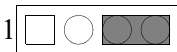
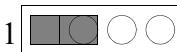
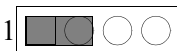
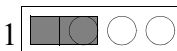
. Intel Pentium CPU clock jumper setting

Table 1: Intel Pentium CPU Clock Jumper setting

| CPU Speed | JP6 | JP9 |
|-------------------------------|-----|-----|
| Pentium -75 50MHz x 1.5 | 1 | 1 |
| Pentium -90 60MHz x 1.5 | 1 | 1 |
| Pentium -100 66MHz x 1.5 | 1 | 1 |
| Pentium - 120 60MHz x 2 | 1 | 1 |
| Pentium -133 66MHz x 2 | 1 | 1 |
| Pentium - 150 60MHzx x 2.5 | 1 | 1 |
| Pentium -166 66MHz x 2.5 | 1 | 1 |
| Pentium -200 66MHz x 3 | 1 | 1 |

. Cyrix 6x86 CPU Clock Jumper Setting

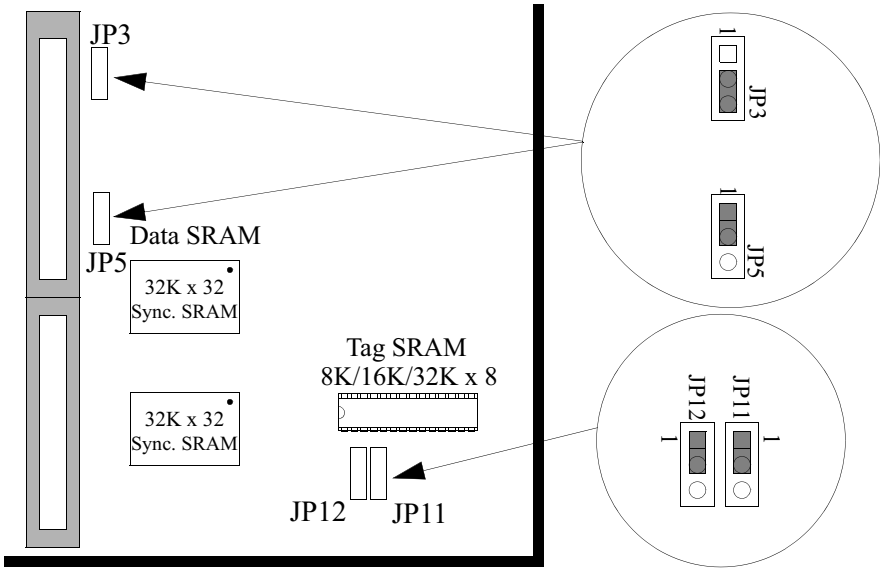
Table 1: Cyrix 6x86 CPU Clock Jumper Setting

| CPU Speed | JP6 | JP9 |
|---|---|---|
| Cyrix 6x86 -P120+ 100MHZ (50MHz x 2) |  |  |
| Cyrix 6x86 - P133+ 110MHz (55MHz x 2) |  |  |
| Cyrix 6x86 - P150+ 120MHz (60MHz x 2) |  |  |
| Cyrix 6x86 - P166+ 133MHz (66MHz x 2) |  |  |

. Cache Memory Selection

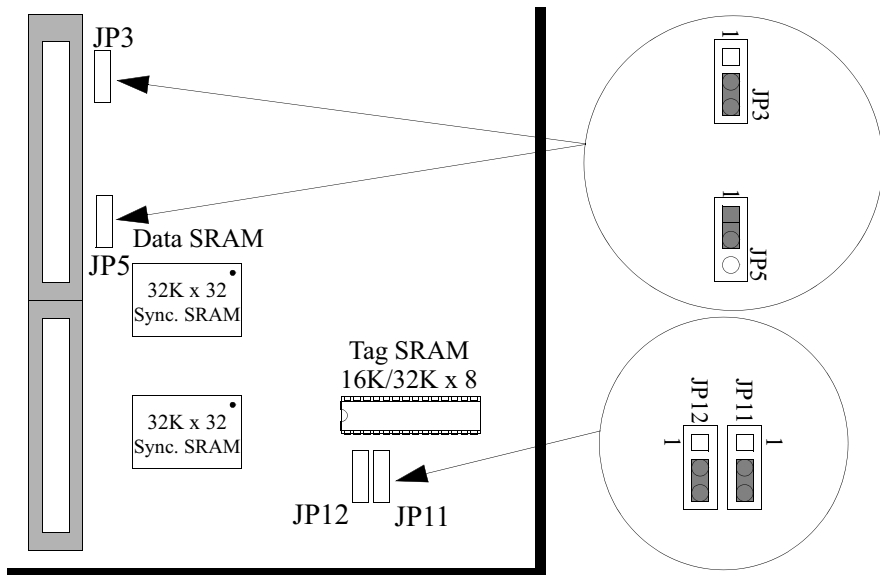
The 586F62 Mainboard supports Synchronous SRAMs on board and/or Cache module in the Cache Slot. The 586F62 has two cache size options: 256KB or 512KB. The figures below show jumper setting for each configuration.

(1) 256KB Cache On Board

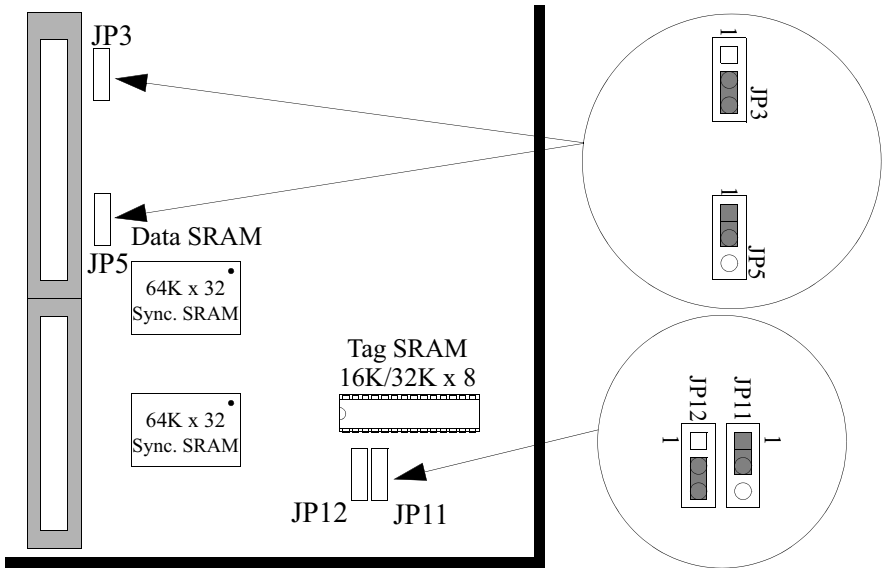
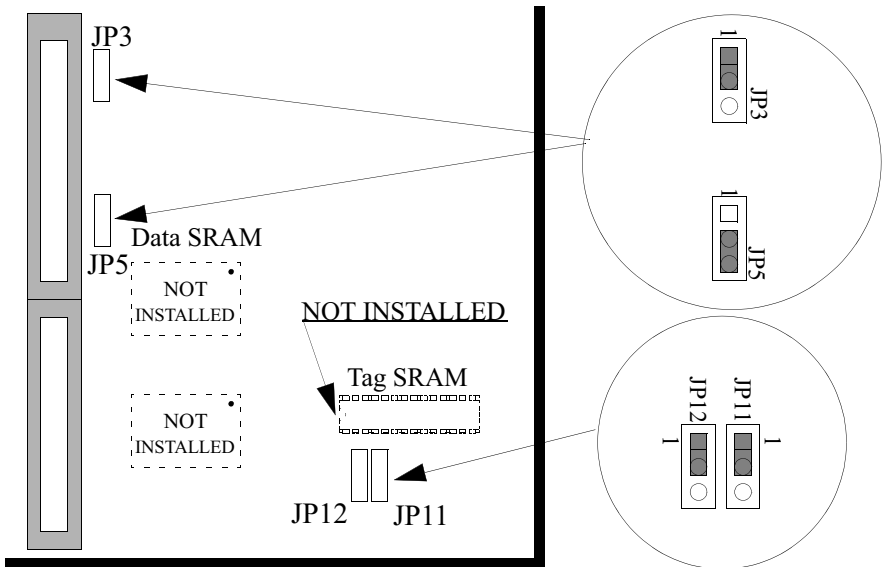


(2) 256KB Cache On Board and 256KB Cache Module, Total 512KB

Note: Only Cache Module designed following Intel COAST specification will work in this configuration.



(3) 512KB Cache On Board

(4) 256KB or 512KB Cache Module
Neither Tag SRAM nor DATA SRAMs are installed

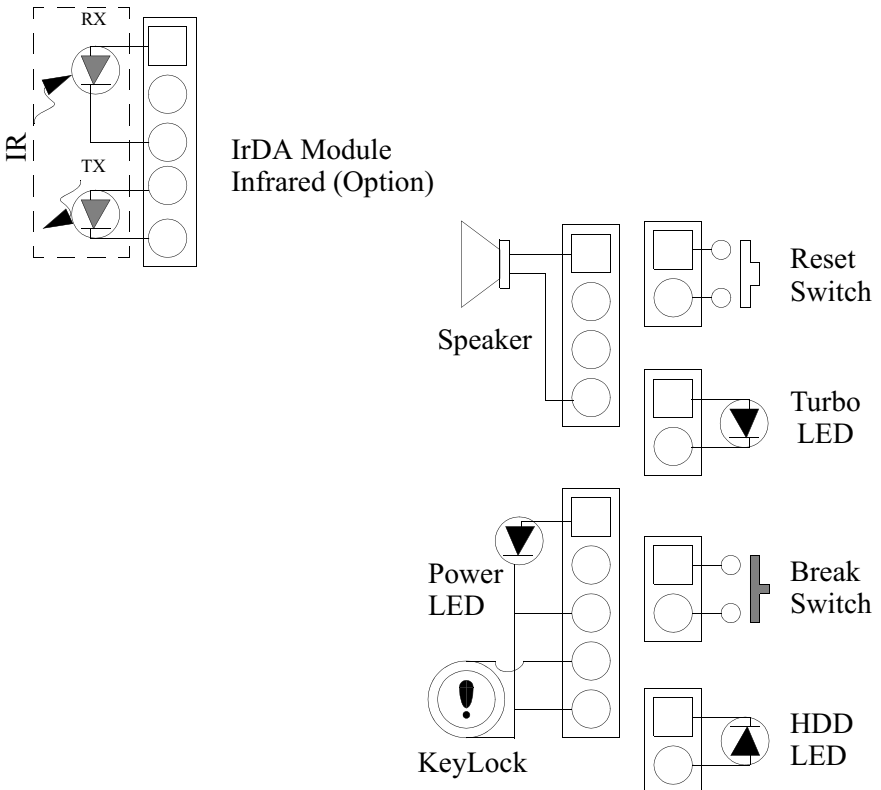
. CMOS RAM Clearance (JP2)

If you need to clear the CMOS RAM data, put a shunt to short JP2 pin1 to pin2 for 5 seconds and the data stored in the CMOS RAM will be wiped out.

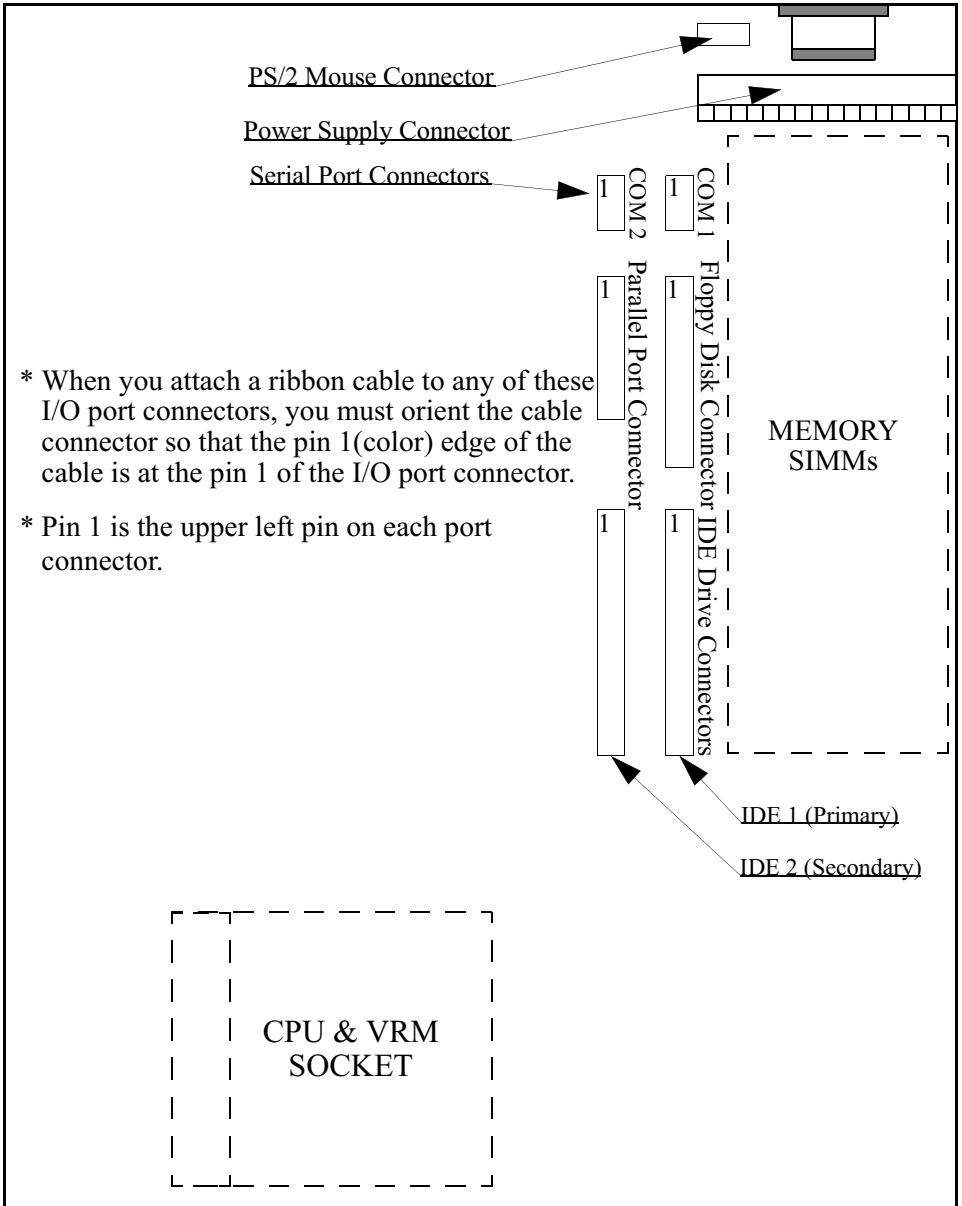
Attaching Connectors

. Front Panel Connectors

There are 7 connectors on the Mainboard for switches and indicator lights from the system front panel.



. I/O Port Connectors



. Cable Set

Included with 586F62 Mainboard is a cable set which contains:

- one IDE Cable.
- one floppy disk drive cable.
- two serial ports cable with mounting bracket.
- one parallel port cable with mounting bracket.

. Power Supply Connector

The Power Supply Connector on the Mainboard is a 12-pin male connector. **Make sure the power supply is unplugged before connecting the leads from the power supply.** Most power supplies have two leads. Each lead has six wires, two of which are black. Connect the leads with the four black wires at the center.

. Voltage Regulator Module (VRM)

The Voltage Regulator Module (VRM) Socket provides flexibility to support various Pentium processor with different voltage requirements in one Mainboard.

The VRM can be defined as a voltage converter with a standardized pin-out capable of converting the system power supply voltage to the voltage required for the Processor Core.

CPU:P54C/P54CT/P54CTB
75/90/100/120/133/150/166MHz
Std Voltage 3.135 V ~ 3.60 V

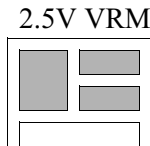
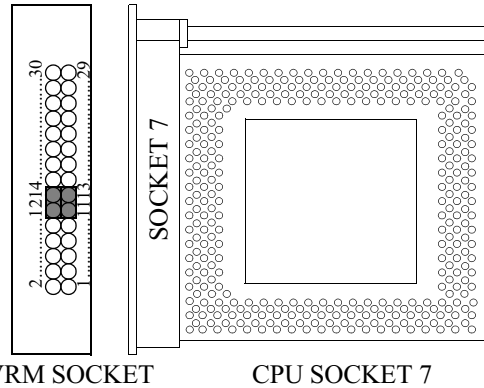
- . Install 2 shunts to short VRM socket pin11 to pin13 and pin12 to pin14.
- . **No VRM Required**
- . **P54CTB based on P55C requires Socket 7**

CPU:P54C/P54CT/P54CTB
75/90/100/120/133/150/166/180/200 MHz
VRE Voltage 3.45 V ~ 3.60 V

- . Install 2 shunts to short VRM socket pin11 to pin13 and pin12 to pin14
- . Install a shunt to short JP8 pin1 to pin2
- . **No VRM Required**
- . **P54CTB based on P55C requires Socket 7**

CPU:P55C 166/200 MHz
Core Voltage different from I/O voltage

- . **Requires a VRM**
- . **Requires Socket 7**



. PS/2 Mouse Connector

The PS/2 Mouse connector (PS2MS) is a 6-pin header for the PS/2 mouse cable with mounting bracket. PS/2 mouse cable is optional

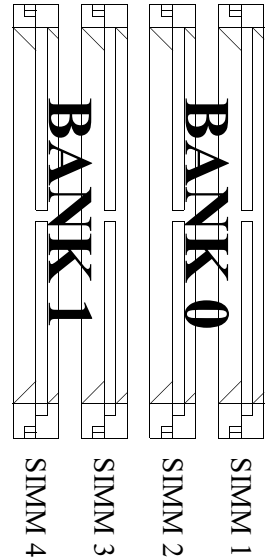
. USB (Universal Serial Bus) Connector

The USB connector is an 8-pin header for the dual USB ports cable with mounting bracket. USB connector and cable are optional.

Installing System Memory

The 586F62 Mainboard has four SIMM Sockets to support up to 512MB of system memory. The four SIMM sockets (SIMM1 ~ SIMM4) are divided into 2 Banks, Bank0 (SIMM1, SIMM2) and Bank1 (SIMM3, SIMM4).

Memory can be installed by using 72-pin EDO or Fast Page Mode SIMM memory modules. Due to the 586F62 Mainboard high speed design, the memory modules for the 586F62 must meet all of following requirements:



| DRAM TYPE | EDO (Extended Data Output) FPM (Fast Page Mode) | |
|----------------|--|--|
| DATA INTEGRITY | None | Supports ECC/Parity |
| MODULDED SIZE | <p>Single-sided</p> <p>Symmetric : 1Mx32, 4Mx32, 16Mx32</p> <p>Asymmetric: 521Kx32, 1Mx32, 2Mx32, 4Mx32, 8Mx32</p> <p>Double-sided</p> <p>Symmetric : 2Mx32, 8Mx32, 32Mx32</p> <p>Asymmetric: 1Mx32, 2Mx32, 4Mx32, 8Mx32, 16Mx32</p> | <p>Single-sided</p> <p>Symmetric : 1Mx36, 4Mx36, 16Mx36</p> <p>Asymmetric: 521Kx36, 1Mx36, 2Mx36, 4Mx36, 8Mx36</p> <p>Double-sided</p> <p>Symmetric : 2Mx36, 8Mx36, 32Mx36</p> <p>Asymmetric: 1Mx36, 2Mx36, 4Mx36, 8Mx36, 16Mx36</p> |
| REQUIREMENTS | <p>DRAM Speed : 60ns or 70ns</p> <p>RAS Access Time : 60ns ~ 70ns</p> <p>CAS Access Time : 10ns ~ 25ns</p> <p>Two SIMM modules must be installed at a time and each pair of modules must be the same size, type and speed.</p> | |

The following table shows the system memory configuration which **does not** support ECC/Parity feature.

| BANK 0 | BANK 1 |
|--|--|
| EDO/FPM, Two 72-pin SIMM modules | EDO/FPM, Two 72-pin SIMM modules |
| None Single-sided Symmetric : 1Mx32, 4Mx32, 16Mx32 Asymmetric: 512Kx32, 1Mx32, 2Mx32, 4Mx32, 8Mx32 | None Single-sided Symmetric : 1Mx32, 4Mx32, 16Mx32 Asymmetric: 512Kx32, 1Mx32, 2Mx32, 4Mx32, 8Mx32 |
| None Single-sided Symmetric : 1Mx32, 4Mx32, 16Mx32 Asymmetric: 512Kx32, 1Mx32, 2Mx32, 4Mx32, 8Mx32 | None Double-sided Symmetric : 2Mx32, 8Mx32, 32Mx32 Asymmetric: 1Mx32, 2Mx32, 4Mx32, 8Mx32, 16Mx32 |
| None Double-sided Symmetric : 2Mx32, 8Mx32, 32Mx32 Asymmetric: 1Mx32, 2Mx32, 4Mx32, 8Mx32, 16Mx32 | None Single-sided Symmetric : 1Mx32, 4Mx32, 16Mx32 Asymmetric: 512Kx32, 1Mx32, 2Mx32, 4Mx32, 8Mx32 |
| None Double-sided Symmetric : 2Mx32, 8Mx32, 32Mx32 Asymmetric: 1Mx32, 2Mx32, 4Mx32, 8Mx32, 16Mx32 | None Double-sided Symmetric : 2Mx32, 8Mx32, 32Mx32 Asymmetric: 1Mx32, 2Mx32, 4Mx32, 8Mx32, 16Mx32 |

The following table shows the system memory configuration which supports ECC/Parity feature.

| BANK 0 | BANK 1 |
|--|--|
| EDO/FPM, Two 72-pin SIMM modules | EDO/FPM, Two 72-pin SIMM modules |
| None Single-sided Symmetric : 1Mx36, 4Mx36, 16Mx36 Asymmetric: 512Kx36, 1Mx36, 2Mx36, 4Mx36, 8Mx36 | None Single-sided Symmetric : 1Mx36, 4Mx36, 16Mx36 Asymmetric: 512Kx36, 1Mx36, 2Mx36, 4Mx36, 8Mx36 |
| None Single-sided Symmetric : 1Mx36, 4Mx36, 16Mx36 Asymmetric: 512Kx36, 1Mx36, 2Mx36, 4Mx36, 8Mx36 | None Double-sided Symmetric : 2Mx36, 8Mx36, 32Mx36 Asymmetric: 1Mx36, 2Mx36, 4Mx36, 8Mx36, 16Mx36 |
| None Double-sided Symmetric : 2Mx36, 8Mx36, 32Mx36 Asymmetric: 1Mx36, 2Mx36, 4Mx36, 8Mx36, 16Mx36 | None Single-sided Symmetric : 1Mx36, 4Mx36, 16Mx36 Asymmetric: 512Kx36, 1Mx36, 2Mx36, 4Mx36, 8Mx36 |
| None Double-sided Symmetric : 2Mx36, 8Mx36, 32Mx36 Asymmetric: 1Mx36, 2Mx36, 4Mx36, 8Mx36, 16Mx36 | None Double-sided Symmetric : 2Mx36, 8Mx36, 32Mx36 Asymmetric: 1Mx36, 2Mx36, 4Mx36, 8Mx36, 16Mx36 |

3 Software Guide

Software Setup

After hardware configuration of 586F62 Mainboard is completed, and system hardware has been assembled, the completed system may be powered up. At this point, software setup should be run to ensure that system information is correct.

Normally, system setup is needed when the system hardware is not consistent with the information contained in the CMOS RAM, whenever the CMOS RAM has lost power, or the system features need to be changed.

Running AWARD BIOS

When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines. These routines perform various diagnostic checks at the time the system is powered up; if an error is encountered, the error will be reported in one of two different ways. If the error occurs before the display device is initialized, a series of beeps will be transmitted. If the error occurs after the display device is initialized, the screen will display the error message.

After the POST routines are completed, the following message appears:

“Press DEL to enter SETUP”

To access the AWARD BIOS SETUP program, press the key. The “CMOS SETUP UTILITY” screen will be displayed at this time.

CMOS SETUP UTILITY

Main Program Screen

| | |
|---|--|
| ROM PCI/ISA BIOS (2A59FF29) CMOS SETUP UTILITY AWARD SOFTWARE, INC. | |
| STANDARD CMOS SETUP IDE HDD AUTO DETECTION LOAD SETUP DEFAULTS SAVE & EXIT SETUP EXIT WITHOUT SAVING HDD LOW LEVEL FORMAT | BIOS FEATURES SETUP CHIPSET FEATURES SETUP POWER MANAGEMENT SETUP PNP/PCI CONFIGURATION INTEGRATED PERIPHERALS SUPERVISOR PASSWORD USER PASSWORD |
| Esc: Quit F10: Save & Exit Setup | ↑ ↓ → ← : Select Item <Shift>F2 : Change Color |
| Time, Date, Hard Disk Type... | |

This screen provides access to the utility's various functions.

Listed below are explanations of the keys displayed at the bottom of the screen:

<ESC>: Exit the utility.

ARROW KEYS: Use arrow keys to move cursor to desired selection.

<F10>: Saves all changes made to Setup and exits program.

<Shift> <F2>: Changes background and foreground colors.

STANDARD CMOS SETUP

Selecting “STANDARD CMOS SETUP “on the main program screen displays this menu:

Standard CMOS Setup Screen

| ROM PCI/ISA BIOS (2A59FF29) STANDARD CMOS SETUP AWARD SOFTWARE, INC. | | | | | | | | | |
|--|--------|---------------------------|------|------|---------|--------------------------|--------|-------|--|
| Date (mm:dd:yy): | | Mon, Feb 26 1996 | | | | | | | |
| Time (hh:mm:ss): | | 10:10:10 | | | | | | | |
| HARD DISKS | TYPE | SIZE | CYLS | HEAD | PRECOMP | LANDZ | SECTOR | MODE | |
| Primary Master | : User | 852 | 826 | 32 | 0 | 1651 | 63 | LBA | |
| Primary Slave | : None | 0 | 0 | 0 | 0 | 0 | 0 | ----- | |
| Secondary Master | : None | 0 | 0 | 0 | 0 | 0 | 0 | ----- | |
| Secondary Slave | : None | 0 | 0 | 0 | 0 | 0 | 0 | ----- | |
| Drive A : 1.44M, 3.5 in. | | | | | | | | | |
| Drive B : None | | | | | | | | | |
| Video : EGA/VGA | | | | | | Base Memory : 640K | | | |
| Halt On : All Errors | | | | | | Extended Memory : 15360K | | | |
| | | | | | | Other Memory : 384K | | | |
| | | | | | | Total Memory : 16384K | | | |
| ESC: Quit | | ↑ ↓ → ← : Select Item | | | | PU/PD/+/-:Modify | | | |
| F1: Help | | (Shift) F2 : Change Color | | | | | | | |

The Standard CMOS Setup utility is used to configure the following features:

Set Date: Month, Date, Year.

Set Time: Hour, Minute, and Second. Use 24 Hour clock format (for PM numbers, add 12 to the hour, you would enter 4:30 p.m. as 16:30).

Hard Disks:

There are four hard disks listed: “Primary Master”, “Primary Slave”, “Secondary Master” and “Secondary Slave”. For Each

IDE channel, the first device is the “Master” and the second device is “Slave”.

Hard disk Types from 1 to 45 are standard ones; Type “Auto” is IDE HDD auto detection; Type “User” is user definable, and Type “None” is not installed (e.g. SCSI).

There are six categories of information you must enter for a HDD: “CYLS” (number of cylinders), “HEAD” (number of heads), “PRECOMP” (write pre-compensation), “LANDZ” (landing zone), “SECTOR” (number of sectors) and “MODE” (Normal, LBA, LARGE and AUTO). The hard disk vendor’s or system manufacturer’s documentation should provide you the information needed. For an IDE hard drive, you can set ‘TYPE’ to “Auto” or use the “IDE HDD AUTO DETECTION” utility in the main program screen to enter the drive specifications.

The AWARD BIOS supports three HDD modes: NORMAL, LBA and LARGE.

NORMAL mode: Generic access mode in which neither the BIOS nor the IDE controller will make any transformation during accessing. The maximum HDD size supported by the NORMAL mode is 528 Megabytes.

LBA mode: Logical Block Addressing mode is a HDD accessing method to overcome the 528Megabytes restriction. The number of cylinders, heads and sectors shown in setup may not be the number physically contained in the HDD.

During HDD accessing, the IDE controller will transform the logical address described by the cylinder, head and sector numbers into its own physical address inside the HDD. The maximum HDD size supported by the LBA mode is 8.4 Gigabytes.

LARGE mode: Some IDE HDD contains more than 1024 cylinders without LBA support. This access mode tricks DOS (or other OS) that the number of cylinders is less than 1024 by dividing it by 2. At the same time, number of heads is multiplied by 2.

A reverse transformation process will be made inside INT13h in order to accessing the right HDD address. The maximum HDD size supported by the LARGE mode is 1 Gigabytes.

Note: To support LBA or LARGE mode, there must be some software involved. All these software are located in the AWARD HDD Service Routine "INT13h". It may fail to access a HDD with LBA or LARGE modes selected if you are running under an Operating System which replaces the whole INT13h service routine.

Floppy Drive A and Floppy Drive B: The options are: "360K, 5.25 in.", "1.2M, 5.25in.", "720K, 3.5in.", "1.44M, 3.5in.", "2.88M, 3.5in." and "None (Not Installed)". Not Installed could be used as an option for diskless workstations.

IDE HDD AUTO DETECTION

If your system has an IDE hard drive, you can use this utility to detect its parameters and enter them into the Standard CMOS Setup automatically.

If the auto-detected parameters displayed do not match the ones that should be used for your hard drive, do not accept them. Press the <N> key to reject the values and enter the correct ones manually on the Standard CMOS Setup screen.

Note: If you are setting up a new hard disk drive (nothing on it) that supports LBA mode, more than one line will appear in the parameter box, choose the line that lists LBA for an LBA drive.

Do not choose Large or Normal if the hard disk drive is already fully formatted when you install it, choose the mode which is used to format it.

LOAD SETUP DEFAULTS

“LOAD SETUP DEFAULTS” loads optimal settings which are stored in the BIOS ROM.

The defaults loaded only affect the BIOS Features Setup, Chipset Features Setup, Power Management Setup, PnP/PCI configuration setup and Integrated Peripherals Setup. There is no effect on the Standard CMOS Setup. To use this feature, highlight on the main screen and press <Enter>. A line will appear on the screen asking if you want to load the Setup default values. Press the <Y> key and then press the <Enter> key if you want to load the Setup defaults. Press <N> if you don't want to proceed.

SAVE & EXIT SETUP

Selecting this option and pressing the <Enter> key to save the new setting information in the CMOS memory and continue with the booting process.

EXIT WITHOUT SAVING

Selecting this option and pressing the <Enter> key to exit the Setup Utility without recording any new values or changing old ones.

HDD LOW LEVEL FORMAT

Selecting this option and pressing the <Enter> key enable you to perform low level format of hard disk drive.

BIOS FEATURES SETUP

Selecting “BIOS FEATURES SETUP” on the main program screen displays this menu:

BIOS Features Setup Screen

| ROM PCI/ISA BIOS (2A59FF29) 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 | : Disabled | D0000 - D3FFF Shadow | : Disabled |
| Boot Sequence | : C, A | 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 | PS/2 mouse function control | : Disabled |
| Gate A20 Option | : Fast | OS Select For DRAM>64MB | : No-OS2 |
| Typematic Rate Setting | : Disabled | ESC : Quit ↑ ↓ → ← :Select Item F1 : Help PU/PD/+/- :Modify F5 : Old Values (Shift) F2: Color F6 : Load BIOS Defaults F7 : Load Setup Defaults | |
| Typematic Rate (Chars/Sec) | : 6 | | |
| Typematic Delay (Msec) | : 250 | | |
| Security Option | : Setup | | |
| PCI/VGA Palette Snoop | : Disabled | | |

The following explains the options for each features:

Virus Warning: The Virus Warning’s default setting is “Disabled”. When enabled, any attempt to write the boot sector and partition table will halt the system and cause a warning message to appear. If this happens, you can use an anti-virus utility on a virus free, bootable floppy diskette to reboot and clean your system.

CPU Internal Cache: The default setting is “Enabled”. This Setting enables the CPU internal cache.

External Cache: The default setting is “Enabled”. This setting enables the external cache.

Quick Power On Self Test: The default setting is “Disabled”. If enabled, this will skip some diagnostic checks during the Power On Self Test (POST) to speed up booting process.

Boot Sequence: The default setting is “C,A”; the other options are “CDROM, C, A” and “C, CDROM, A”. The BIOS will load the operating system from the disk drives in the sequence selected here.

Swap Floppy Drive: The default setting is “Disabled”. This setting gives you an option to swap A and B floppy disks. Normally the floppy drive A is the one at the end of the cable, if you set this option to “Enabled”, the drive at the end of the cable will be swapped to B.

Boot Up Floppy Seek: The default setting is “Enabled”. When enabled, the BIOS will check whether there is a floppy disk drive installed.

Boot Up Numlock Status: The default setting is “On”. If set “Off”, the cursor controls will function on the numeric keypad.

Gate A20 Option: the default setting is “Fast”. This is the optimal setting for the Mainboard. The other option is “Normal”.

Typematic Rate Setting: The default setting is “Disabled”. If enabled, you can set the typematic Rate and typematic Delay.

Typematic Rate (Chars/Sec): This setting controls the speed at which the system registers repeated keystrokes. The choices range from 6 to 30 Chars/Sec. The default setting is “6” Chars/Sec.

Typematic Delay (Msec): This setting controls the time between the display of the first and second characters. There are four delay choices: 250ms, 500ms, 750ms and 1000ms. The default setting is “250” ms.

Security Option: This setting controls the password feature. The options are “Setup” and “System”. Select “Setup” will protect the configuration settings from being tampered with. Select “System” if you want to use password feature every time the system boots up. The default setting is “Setup”. You can create your password by using the “SUPERVISOR/USER PASSWORD” utility on the main program screen.

PCI/VGA Palette Snoop: The default setting is “Disabled”. Set to “Enable” if any ISA adapter card installed requires VGA palette snooping.

Video BIOS Shadow: The default setting is “Enabled” which will copy the VGA BIOS into system DRAM.

C8000-CBFFF Shadow to DC000-DFFFF Shadow: The default setting for the shadow feature is “Disabled”. When enabled, the ROM with the specific address is copied into system DRAM. It will also reduce the size of memory available to the system.

PS/2 mouse function control: The Default setting is “Disabled”. Set to “Enabled” when a PS/2 mouse is attached to the system and used as an input device.

OS Select For DRAM > 64MB:The default setting is “Non-OS2”. Set to “OS2” if the system memory size is greater than 64MB and the operating system is OS/2.

After you have made your selection in the BIOS FEATURES SETUP, press the <ESC> key to go back to the main program screen.

CHIPSET FEATURES SETUP

Selecting “CHIPSET FEATURES SETUP” on the main program screen displays this menu:

Chipset Features Setup Screen

| ROM PCI/ISA BIOS (2A59FF29) CHIPSET FEATURES SETUP AWARD SOFTWARE, INC. | | | |
|---|-------------|--------------------------|-----------------------|
| Auto Configuration | : Enabled | Chipset Special Features | : Enabled |
| DRAM Timing | : 70 ns | DRAM ECC/PARITY Select | : ECC |
| DRAM RAS# Precharge Time | : 4 | Memory Parity/ECC Check | : Auto |
| DRAM R/W Leadoff Timing | : 7/6 | Single Bit Error Report | : Disabled |
| DRAM RAS To Cas Delay | : 3 | | |
| DRAM Read Burst Timing | : x222/x333 | | |
| DRAM Write Burst Timing | : x333 | | |
| Turbo Read Leadoff | : Disabled | | |
| DRAM Speculative Leadoff | : Disabled | | |
| Turn-Around Insertion | : Disabled | | |
| ISA Clock | : PCICLK/4 | | |
| System BIOS Cacheable | : Enabled | | |
| Video BIOS Cacheable | : Enabled | | |
| 8 Bit I/O Recovery Time | : 1 | ESC: Quit | ↑ ↓ → ← : Select Item |
| 16 Bit I/O Recovery Time | : 1 | F1 : Help | PU/PD/+/-: Modify |
| | | F5 : Old Values | (Shift) F2: Color |
| Memory Hole At 15M-16M | : Disabled | F6 : Load BIOS Defaults | |
| Peer Concurrency | : Enabled | F7 : Load Setup Defaults | |

This screen controls the settings for the board’s chipset. All the entries on the screen are automatically configured. However, you can change it according to your operating environment.

Auto Configuration: The default setting is “Enabled” which will set optimal DRAM timing automatically depending on whether the DRAM used is 70ns or 60ns. The other option is “Disabled” which allows you to change DRAM timing manually.

DRAM Timing: Choose DRAM speed 60ns or 70ns.

Peer Concurrency: The default setting is “Enabled” which allows CPU to run DRAM/External Cache cycles when PCI masters are running cycles targeting PCI peer devices. The other option is “Disabled”.

DRAM ECC/PARITY Select: There are two options: ECC or Parity, the default setting is ECC.

Memory Parity/ECC check: There are 2 options: Auto and Disabled. When set to “Auto”, Parity or ECC check (depends on the setting of “DRAM ECC/PRITY Select”) will be automatically enabled if SIMM modules with Parity bits are used.

Single Bit Error Report: If set to “Enabled”, BIOS will report single bit error on the screen. The default setting is “Disabled”.

After you have made your selections in the CHIPSET FEATURES SETUP, press the <ESC> key to go back to the main program screen.

POWER MANAGEMENT SETUP

The “Power Management Setup” controls the mainboard’s “Green” features.

Selecting “POWER MANAGEMENT SETUP” on the main program screen displays this menu:

Power Management Setup Screen

| ROM PCI/ISA BIOS (2A59FF29) POWER MANAGEMENT SETUP AWARD SOFTWARE, INC. | | | |
|---|------------------|---------------------|-------|
| Power Management | : Disable | IRQ5 (LPT 2) | : ON |
| PM Control by APM | : No | IRQ6 (Floppy Disk) | : ON |
| Video Off Method | : V/H SYNC+Blank | IRQ7 (LPT 1) | : OFF |
| Doze Mode | : Disable | IRQ8 (RTC Alarm) | : OFF |
| Standby Mode | : Disable | IRQ9 (IRQ2 Redir) | : OFF |
| Suspend Mode | : Disable | IRQ10 (Reserved) | : OFF |
| HDD Power Down | : Disable | IRQ11 (Reserved) | : OFF |
| | | IRQ12 (PS/2 Mouse) | : ON |
| | | IRQ13 (Coprocessor) | : ON |
| | | IRQ14 (Hard Disk) | : ON |
| | | IRQ15 (Reserved) | : ON |
| ** Wake Up Events ** | | | |
| IRQ3 (Wake-Up Event) | : ON | | |
| IRQ4 (Wake-Up Event) | : ON | | |
| IRQ8 (Wake-Up Event) | : OFF | | |
| IRQ12(Wake-Up Event) | : ON | | |
| ** Power Down / Resume Events ** | | | |
| IRQ3 (COM 2) | : ON | | |
| IRQ4 (COM 1) | : ON | | |
| ESC: Quit ↑ ↓ → ← :Select Item F1 : Help PU/PD/+/-:Modify F5 : Old Values (Shift) F2: Color F6 : Load BIOS Defaults F7 : Load Setup Defaults | | | |

Power Management: This setting controls the System Doze Mode, Standby Mode and Suspend Mode Timer features. There are four options:

User Define: Allows you to customize all power saving timer features.

Optimize: This is the recommended setting for general use.

Test/Demo: This is for test/demonstration purpose.

Disable: Disable the power management features.

PM Control by APM: The default setting is “No”. If set to “Yes”, system BIOS will wait for APM’s prompt before it enters any PM mode.

Note: If your system power management is controlled by APM and there is a task running, the APM will not prompt the BIOS to enter any power saving mode after time out.

Video Off Method: This setting controls the Video off method in power saving mode. The default setting is “V/H SYNC+Blank”. This setting disables V/H SYNC signals and blanks the screen in power saving mode. Other options are “Blank Screen” and “DPMS”.

Doze Mode: Options are from “1 Min” to “1 Hour” and “Disable”. The system speed will change from turbo to slow if no Power Management events occur for a specified length of time. Full power function will return when a Wake-Up event is detected.

Standby Mode: Options are from “1 Min” to “1 Hour” and “Disable”. The system speed will change from turbo to slow and the video signal will be suspended if no Power Management events occur for a specified length of time. Full power function will return when a Wake-Up event is detected.

Suspend Mode: Options are from “1 Min” to “1 Hour” and “Disable”. The CPU clock will be stopped and the video signal will be suspended if no Power Management events occur for a specified length of time. Full power function will return when a Wake-Up event is detected.

HDD Power Down: Options are from “1 Min” to “15 Min” and “Disable”. The IDE hard drive will spin down if it is not accessed within a specified length of time.

Wake-Up Events: When a hardware event is enabled, the occurrence of a corresponding event will return the system to full speed.

Power Down / Resume Events: when a hardware event is enabled, the occurrence of a corresponding event will prevent the system from entering any PM mode.

After you have made your selection in the POWER MANAGEMENT SETUP, press the <ESC> key to go back to the main program screen.

PNP / PCI CONFIGURATION

Both the ISA and PCI buses on the Mainboard use system IRQs & DMAs. You must set up the IRQ and DMA assignments correctly thru the PnP/PCI Configuration Setup utility, otherwise the Mainboard will not work properly.

Selecting “PNP / PCI CONFIGURATION” on the main program screen displays this menu:

PNP / PCI Configuration

| ROM PCI/ISA BIOS (2A59FF29) PNP / PCI CONFIGURATION AWARD SOFTWARE, INC. | |
|--|---|
| Resources Controlled By : Manual | PCI IRQ Activated By : Level |
| Reset Configuration Data : Disabled | PCI IDE IRQ Map To : PCI - AUTO |
| | Primary IDE INT# : A |
| | Secondary IDE INT# : B |
| IRQ-3 assigned to : Legacy ISA | |
| IRQ-4 assigned to : Legacy ISA | |
| IRQ-5 assigned to : PCI / ISA PnP | |
| IRQ-7 assigned to : Legacy ISA | |
| 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 | |
| DMA-1 assigned to : PCI / ISA PnP | |
| DMA-3 assigned to : PCI / ISA PnP | |
| DMA-5 assigned to : PCI / ISA PnP | |
| DMA-6 assigned to : PCI / ISA PnP | |
| DMA-7 assigned to : PCI / ISA PnP | |
| | ESC: Quit ↑ ↓ → ← :Select Item |
| | F1 : Help PU/PD/+/-:Modify |
| | F5 : Old Values (Shift) F2: Color |
| | F6 : Load BIOS Defaults |
| | F7 : Load Setup Defaults |

Resources Controlled By: The defaults setting is “Auto” which will control all IRQs and DMAs automatically. The other option is “Manual” which allows you to control IRQs and DMAs individually.

Reset Configuration Data: The default setting is “Disabled”. When set to “Enabled”, The content of the ESCD block in flash BIOS will be cleared.

IRQ and DMA Assigned to.: If there is a legacy ISA device which uses an IRQ or a DMA, set the corresponding IRQ or DMA to “Legacy ISA”, otherwise you should set to PCI/ISA PnP.

PCI IRQ Activated By: Options are “Level” or “Edge”. The default setting is “Level”. This option is used to select the IRQ’s trigger method.

PCI IDE IRQ Map To, Primary IDE INT#, Secondary IDE INT#:

If you disable onboard PCI IDE controller and install a PCI IDE card on the Mainboard, you need to set this option. If a PCI IDE Card which uses ISA IRQ directly thru a paddle card installed on an ISA slot, select “ISA” for the option “PCI IDE IRQ Map To”. If a PCI IDE Card uses PCI “INT” and is compliant to PCI Plug and Play specification, select “PCI-AUTO” for the option “PCI IDE IRQ Map To”. Otherwise select “PCI-SLOT n” (PCI-SLOT 1, PCI-SLOT 2 or PCI-SLOT 3) depends on which slot the PCI IDE Card is installed.

Only INT A and INT B are available for a PCI IDE Card, therefore you must set the PCI IDE Card’s primary interrupt to INT A and secondary interrupt to INT B. The INT A is routed to IRQ 14 and the INT B is routed to IRQ 15 thru a hardware router in the chipset.

INTEGRATED PERIPHERALS

Selecting “INTEGRATED PERIPHERALS” on the main program screen displays this menu

Integrated Peripheral Screen

| | |
|--|---|
| ROM PCI/ISA BIOS (2A59FF29) INTEGRATED PERIPHERALS AWARD SOFTWARE, INC. | |
| IDE HDD Block Mode : Enabled PCI Slot IDE 2nd Channel : Enabled On-Chip Primary PCI IDE : Enabled On-Chip Secondary PCI IDE : Enabled IDE Primary Master PIO : Auto IDE Primary Slave PIO : Auto IDE Secondary Master PIO : Auto IDE Secondary Slave PIO : Auto Onboard FDD Controller : Enabled Onboard Serial Port 1 : COM1 / 3F8 Onboard Serial Port 2 : COM2 / 2F8 Onboard Parallel Port : 378 / IRQ7 Onboard Parallel Mode : Normal Serial Port 1 MIDI : Disabled Serial Port 2 MIDI : Disabled | ESC: Quit ↑ ↓ → ← :Select Item F1 : Help PU/PD/+/-:Modify F5 : Old Values (Shift) F2: Color F6 : Load BIOS Defaults F7 : Load Setup Defaults |

IDE HDD Block Mode: The Default setting is “Enabled”. This feature enhances hard disk performance by making multi-sector transfers instead of one sector per transfer. Most IDE drives, except very early design, have Block Mode transfer feature.

PCI Slot IDE 2nd Channel

The default setting is “Enabled”. This option enables the Secondary PCI IDE controller of the PCI IDE adapter.

On-Chip Primary/Secondary PCI IDE: The default setting is “Enabled”. This option enables the onboard Primary / Secondary PCI IDE controller.

IDE Primary Master PIO, IDE Primary Slave PIO, IDE Secondary Master PIO, IDE Secondary Slave PIO: There are six options “Auto”, “Mode 0”, “Mode 1”, “Mode 2”, “Mode 3” and “Mode 4”. The default setting is “Auto”. When set to “Auto” the BIOS will automatically set the mode to match the transfer rate of hard disk. If the system won’t boot up when set to “Auto”, set it manually to the lower mode. (e.g. From Mode 3 to Mode 2). All IDE drives should work with PIO mode 0.

Onboard FDD Controller: The default setting is “Enabled”. This option enables the onboard FDD controller.

Onboard Serial Port 1 and Onboard Serial Port 2: These options are used to assign the I/O addresses for the two onboard serial ports. They can be assigned as follows:

- COM1 / 3F8H (Serial Port 1 default)
- COM2 / 2F8H (Serial Port 2 default)
- COM3 / 3E8H
- COM4 / 2E8H
- Disabled (Disable the onboard serial port)

Onboard Parallel Port: This option is used to assign the I/O address for the onboard parallel port. The options are “378/IRQ7” (defaults), “278/IRQ7”, “3BC/IRQ7” and “Disabled” (disable the onboard parallel port). Note: Printer port always use IRQ7 when set “378/IRQ7” or “278/IRQ7” or “3BC/IRQ7” to “Enabled”.

Onboard Parallel Mode: There are four options “Normal” (default), “ECP”, “ECP/EPP” and “EPP/SPP”. Change the mode from “Normal” to the enhanced mode only if your peripheral device can support it. When set to ECP mode, the printer port always use DMA3.

Serial Port 1 MIDI and Serial Port 2 MIDI: These features enable the MIDI interface for serial ports. The default setting is “Disabled”.

If you make any change for onboard FDD controller, serial ports or parallel port in this setup, save the change and turn off the system. After turning system on again the change will be effective.

SUPERVISOR / USER PASSWORD

The "SUPERVISOR/USER PASSWORD" utility sets the password. The Mainboard is shipped with the password disabled. If you want to change the password, you must first enter the current password, then at the prompt enter your new password. The password is case sensitive and you can use up to 8 alphanumeric characters, press <Enter> after entering the password. At the next prompt, confirm the new password by typing it and pressing <Enter> again.

To disable the password, press the <Enter> key instead of entering a new password when the "Enter Password" dialog box appears. A message will appear confirming that the password is disabled.

If you have set both supervisor and user password, only the supervisor password allows you to enter the BIOS SETUP PROGRAM.

Note:

If you forget your password, the only way to solve this problem is to discharge the CMOS memory by turning power off and placing a shunt on the JP2 to short pin 1 and pin 2 for 5 seconds, then removing the shunt.