E586-ICP
E586-IPE
System Board
User's Manual

- D23540520 -

❖ Copyright 1994, by DFI Inc.

All rights reserved.

No part of this document may be copied or reproduced in any form or by any means without the prior written consent of DFI, Inc.

DFI, Inc. makes no warranties with respect to this documentation and disclaims any implied warranties of merchantability, quality, or fitness for any particular purpose. The information in this document is subject to change without notice. DFI, Inc. reserves the right to make revisions to this publication and to make changes to any and/or all parts of its content, at any time, without obligation to notify any person or entity of such changes. Further, DFI, Inc. assumes no responsibility for any errors that may appear in this document.

DFI is a registered trademark, and E586-ICP/E586-IPE is a trademark of Diamond Flower, Inc. All other product names mentioned are trademarks or registered trademarks of their respective companies.

❖ FCC Statement on Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- *Reorient or relocate the receiving antenna.*
- *Increase the separation between the equipment and the receiver.*
- *Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.*
- *Consult the dealer or an experienced radio TV technician for help.*

Notice:

1. *The changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.*

2. *Shielded interface cables must be used in order to comply with the emission limits.*

❖ Table of Contents ❖

Introduction 1-1
Features and Specifications 1-2
Package Checklist 1-2

Installation Overview 2-1
Preparing the Area 2-1
Handling the System Board 2-2
Tips in Handling the System Board 2-2
Hardware Installation 2-2
Memory Installation 2-2
Installing the Modules 2-6
Board Configuration 2-7
Jumper Settings 2-9
Cache Configuration 2-13
Jumper Settings for Cache Memory 2-15
CPU Installation 2-16
Jumper Settings for CPU 2-17
Installing Upgrade CPUs 2-18
Installing the System Board 2-22
Installing the PS/2 Mouse Port 2-24

Initial Setup Program 3-1
Award BIOS CMOS Setup Utilities 3-2
Standard CMOS Setup 3-2
BIOS Features Setup 3-5
Chipset Features Setup 3-7
PCI Slot Configuration 3-8
Load BIOS Defaults 3-9
Load Setup Defaults 3-9
Password Setting 3-10
IDE HDD Auto Detection 3-11
Save & Exit Setup 3-11
Exit Without Saving 3-12

EISA Configuration Utility 4-1
Troubleshooting Checklist 5-1

Appendix A: Types of Modules A-1
Appendix B: System Error Report B-1
Appendix C: Memory & I/O Maps C-1
Appendix D: EISA I/O Pin Assignments D-1
Appendix E: PCI I/O Pin Assignments E-1
Appendix F: Connector Pin Assignments F-1
Appendix G: Award BIOS Hard Disk Table G-1

This page left intentionally blank.

Read Me First

The E586-ICP/E586-IPE system board **requires** the installation of the ECU (EISA Configuration Utility), found on the provided EISA Configuration Utility diskette, for proper operation of this system board.

The ECU configures the EISA devices and maintains system parameters by storing them in the Extended CMOS Memory, so the BIOS can initialize the system and expansion boards inserted in the EISA slots once you power up your system.

The Extended CMOS Memory is equipped with an internal battery that needs to be constantly charged. In a small number of cases, the internal battery may have drained and the information stored in the Extended CMOS Memory lost during shipment. If this happens, you will get the message "**EISA CMOS Inoperational**" when you power up your system. Simply run the ECU software, bundled with the system board, to reconfigure the system. Save the configuration and reboot your system. Refer to the EISA Configuration Utility section on page 4-1 for more detailed information.

❖ Introduction

The E586-ICP/E586-IPE system board offers several advanced features integrated into the system board. It is designed based on the new PCI (Peripheral Component Interconnect) local bus and EISA (Extended Industry Standard Architecture) standards.

The E586-ICP/E586-IPE supports 273-pin Zero Insertion Force socket for Pentium™ processors running at 60MHz or 66MHz bus speed. It also supports an optional Flash EPROM. Flash EPROM is a memory chip for the storage of BIOS which can be erased in bulk or modified using a software utility.

The E586-ICP/E586-IPE comes with an EISA Configuration Utility (ECU) that must be installed and run to configure the board and the EISA expansion boards that will be inserted in the EISA expansion slots.

The E586-ICP/E586-IPE system board is equipped with four EISA and four PCI local bus slots. One EISA slot and one PCI slot are shared, meaning you may use only one or the other of these three slots. Therefore, in accord with the PCI standard, seven slots are useable.

The E586-ICP/E586-IPE is also equipped with one mini-DIN-6 connector for the PS/2 mouse and an optional IDE disk interface, only if installed with the Symphony SL82C101P chip.

The E586-ICP/E586-IPE can be configured to twenty-two different sizes from 2MB to 128MB using 256Kx36, 512Kx36, 1Mx36, 2Mx36, 4Mx36 and 8Mx36 HSIM modules.

Features and Specifications

- **Microprocessor**
  Pentium™ Processor

- **Chipset**
  Intel 82430 PCI: system
  Symphony SL82C101P: PCI IDE (optional)

- **BIOS**
  Award system BIOS

- **Cache Memory**
  256K or 512K Burst (sync) SRAM for 3-1-1-1 Level 2 cache access (E586-ICP)
  256K or 512K Async SRAM for 3-2-2-2 Level 2 cache access (E586-IPE)
  Supports direct map write-back or write-through cache subsystem
  Integrated cache tag RAM

- **Memory Onboard**
  2MB to 128MB

- **DRAM Type**
  256Kx36, 512Kx36, 1Mx36, 2Mx36, 4Mx36 and 8Mx36 SIMM
  Supports single and/or double density SIMMs
  Supports DRAM access time of 60ns or 70ns
  Supports page mode

- **ZIF Socket**
  273-pin ZIF socket (Intel Socket 4)

- **Slots**
  Three 32-bit PCI slots
  One shared - PCI/EISA slot
  Three 32-bit EISA slots

- **Connectors**
  A mini-DIN-6 connector for the PS/2 mouse
  One IDE disk interface (optional; only if installed with the Symphony SL82C101P chip)

- **Tooling Holes**
  Baby AT form factor

- **PCB**
  4 layers

Package Checklist

The E586-ICP/E586-IPE package contains the following items:

- The E586-ICP/E586-IPE system board
- The E586-ICP/E586-IPE user's manual
- One EISA Configuration Utility diskette
- One DB-25S hole cover holding the PS/2 mouse port
- One 40-pin IDE hard disk cable (optional)

If any of these items is missing or damaged, please contact your dealer or sales representative for assistance.

❖ Installation Overview

This chapter summarizes the steps in installing the E586-ICP/E586-IPE system board into your system unit. It also includes a description of the area in which you must work and directions for memory installation. Before installing the system board, obtain the memory you plan to install.

Preparing the Area

Before unpacking the system board, make sure the location you have selected is relatively free of dust and static. Excessive exposure to dust, static electricity, direct sunlight, excessive humidity, extreme cold and water can damage the operational capabilities of your system board. Avoid soft surfaces such as beds and carpeted floors which can hinder air circulation. These areas also attract static electricity which can damage some circuits on your system board.

Be sure that the power source has a properly grounded, three-pronged socket. It is essential that the power connection be properly grounded for correct functioning of your system board. For further protection, we recommend that you use a surge protection socket. This will protect the system board from damage that may result from a power surge on the line.

Move items that generate magnetic fields away from your system board, since magnetic fields can also damage your system board. Once you have selected the ideal location, unpack the E586-ICP/E586-IPE system board carefully.

Handling the System Board

It is quite easy to inadvertently damage your system board even before installing it to your system unit. Static electrical discharge can damage computer components without causing any signs of physical damage. You must take extra care in handling the system board to ensure that no static build-up is present.

Tips in Handling the System Board

1) To prevent electrostatic build-up, leave the board in its anti-static bag until you are ready to install it.

2) Wear an antistatic wriststrap.

3) Do all preparation work on a static-free surface with components facing up.

4) Hold the system board by its edges only. Be careful not to touch any of the components, contacts or connections, especially gold contacts on the board.

5) Avoid touching the pins or contacts on all modules and connectors. Hold modules and connectors by their ends.

Hardware Installation

Memory Installation

The E586-ICP/E586-IPE system board can support 2MB to 128MB of memory using HSIMMs. HSIMM is an acronym for High Density Single In-line Memory Module.

An HSIMM consists of several RAM chips soldered onto a small circuit board. An HSIMM connects to the system board via a 72-pin card-edge connector.

The HSIMM sockets are divided into two banks on the system board. The E586-ICP/E586-IPE system board uses 256Kx36, 512Kx36, 1Mx36, 2Mx36, 4Mx36 and 8Mx36 HSIM modules.

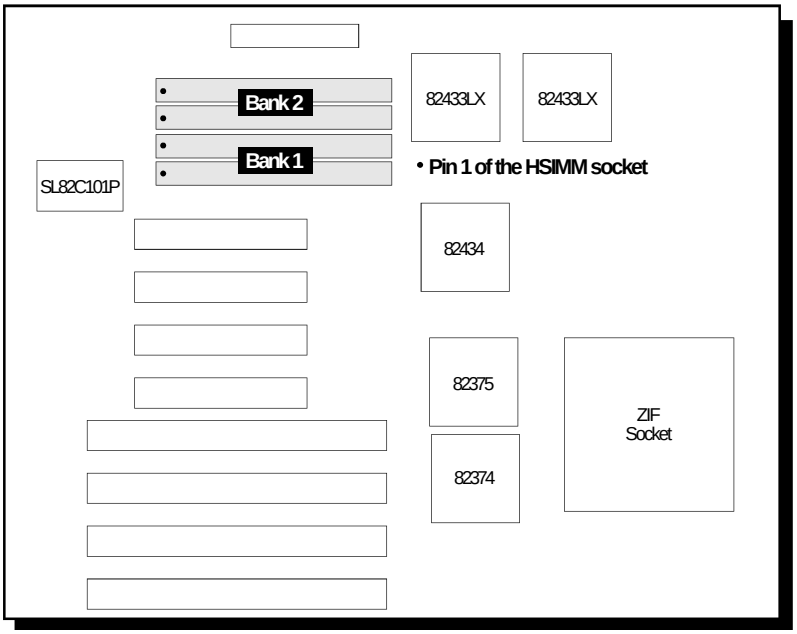
You will need 2 to 4 pieces of HSIM modules, depending on the amount of memory you intend to install. Your system board can be configured with 2MB, 4MB, 6MB, 8MB, 10MB, 12MB, 16MB, 18MB, 20MB, 24MB, 32MB, 34MB, 36MB, 40MB, 48MB, 64MB, 66MB, 68MB, 72MB, 80MB, 96MB or 128MB of onboard memory.

To install the HSIM modules, first populate Bank 1 and then Bank 2. Failure to do so will cause the system board to work improperly.

The following table summarizes the bank locations and modules needed for the corresponding memory sizes. Each bank consists of 2 HSIMM sockets.

Memory Size	Bank1	Bank2
2MB	256Kx36	-
4MB	256Kx36	256Kx36
4MB	512Kx36	-
6MB	256Kx36	512Kx36
6MB	512Kx36	256Kx36
8MB	512Kx36	512Kx36
8MB	1Mx36	-

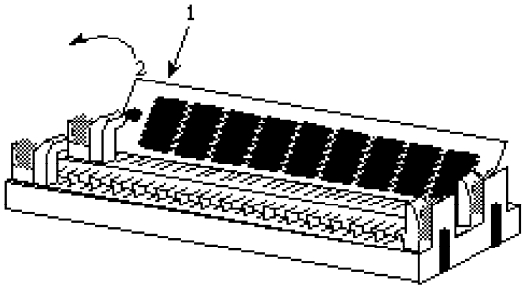
MemorySize	Bank1	Bank2
10MB	256Kx36	1Mx36
10MB	1Mx36	256Kx36
12MB	512Kx36	1Mx36
12MB	1Mx36	512Kx36
16MB	1Mx36	1Mx36
16MB	2Mx36	-
18MB	256Kx36	2Mx36
18MB	2Mx36	256Kx36
20MB	512Kx36	2Mx36
20MB	2Mx36	512Kx36
24MB	1Mx36	2Mx36
24MB	2Mx36	1Mx36
32MB	2Mx36	2Mx36
32MB	4Mx36	-
34MB	256Kx36	4Mx36
34MB	4Mx36	256Kx36
36MB	512Kx36	4Mx36
36MB	4Mx36	512Kx36
40MB	1Mx36	4Mx36
40MB	4Mx36	1Mx36
48MB	2Mx36	4Mx36
48MB	4Mx36	2Mx36
64MB	4Mx36	4Mx36
64MB	8Mx36	-
66MB	256Kx36	8Mx36
66MB	8Mx36	256Kx36
68MB	512Kx36	8Mx36
68MB	8Mx36	512Kx36
72MB	1Mx36	8Mx36
72MB	8Mx36	1Mx36
80MB	2Mx36	8Mx36
80MB	8Mx36	2Mx36
96MB	4Mx36	8Mx36
96MB	8Mx36	4Mx36
128MB	8Mx36	8Mx36



Locations of the HSIMM Sockets on the System Board

Installing the Modules

HSIMMs simply snap into a socket on the system board. Pin 1 of the HSIMM must correspond with Pin 1 of the socket.

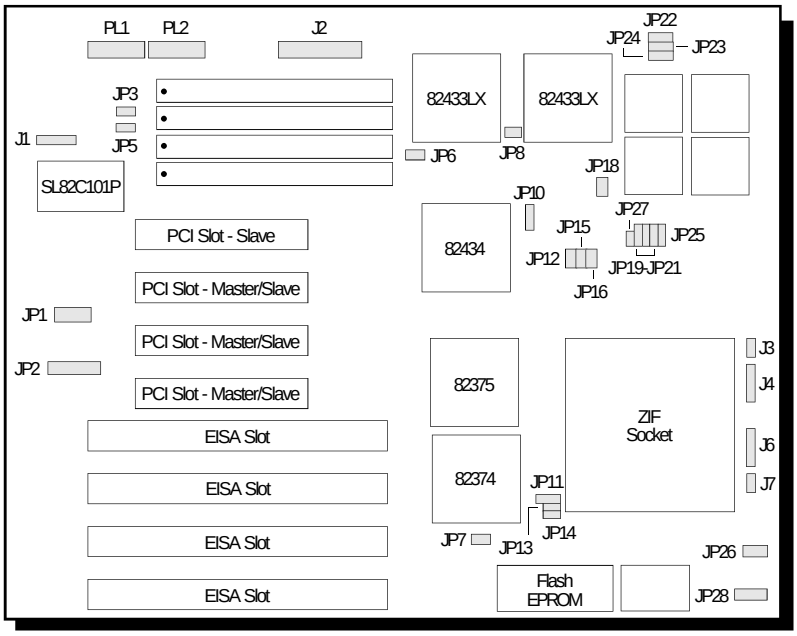


1. Position the HSIM module above the HSIMM socket with the chips of the module facing the center of the system board.

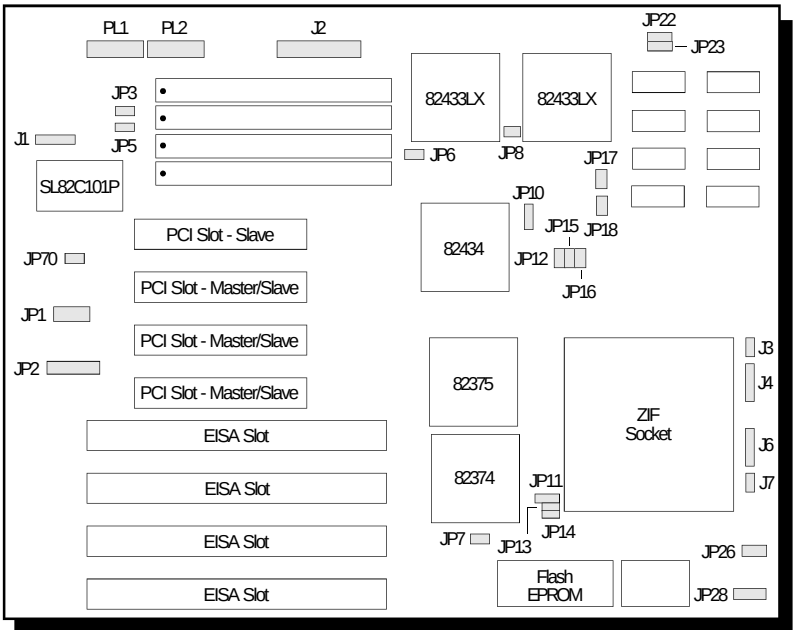
2. Seat the module at an angle into the bank. Make sure it is completely seated. Tilt the module upright until it locks in place in the socket.

Board Configuration

The E586-ICP/E586-IPE is designed with jumpers and connectors onboard. Make sure that the jumpers are set correctly before installing the system board into your system unit.



Locations of Jumpers and Connectors on the E586-ICP System Board



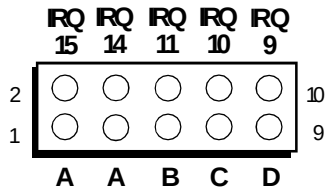
Locations of Jumpers and Connectors on the E586-IPE System Board

Jumper Settings

Jumper JP1
PCI Edge-Triggered Interrupt

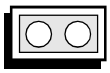
Jumper JP1 is used to select the PCI edge-triggered interrupt of the E586-ICP/E586-IPE system board. Set JP1 according to the table shown below.

JP1		INT	IRQ
1-2	On	Int. A	IRQ15
3-4	On	Int. A	IRQ14
5-6	On	Int. B	IRQ11
7-8	On	Int. C	IRQ10
9-10	On	Int. D	IRQ9

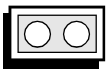


Jumpers JP3 and JP5
Built-in IDE

The E586-ICP/E586-IPE system board is equipped with a built-in IDE disk interface, only if installed with the Symphony SL82C101P chip. Set JP5 to On to enable the built-in IDE. Set JP3 to On to disable the built-in IDE.

JP3 

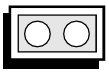
On: IDE Disabled (Default)

JP5 

On: IDE Enabled

Jumpers JP6 and JP8
Parity Enable/Disable

Set Jumpers JP6 and JP8 to On to enable the SRAM's parity bit.

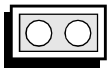


On: Parity Enabled (Default)

Off: Parity Disabled

Jumper JP7
PS/2 Mouse

The E586-ICP/E586-IPE package includes a DB-25S hole cover that holds the PS/2 mouse port. The PS/2 mouse port uses IRQ12. If you set Jumper JP7 to IRQ12 enable, make sure you connect the PS/2 mouse port to Connector J1.

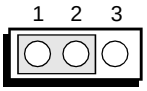


On: IRQ12 Enabled
(Default)

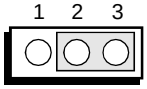
Off: IRQ12 Disabled

Jumper JP11
Display Type Select

Jumper JP11 sets the display adapter to color or mono. This jumper must match the type of display adapter installed. If you change your video adapter, make sure this jumper is changed accordingly.



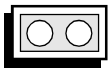
1-2 On: Color
(Default)



2-3 On: Mono

Jumper JP13
Password Clear

If you set a password in the "Password Setting" option and forget your password, power off your system and set Jumper JP13 to On to clear the password stored in your CMOS. Now power on your system. After your system has detected the floppy or hard drive, turn it off again and set JP13 to Off.

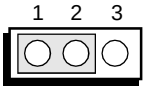


On: Clear Password

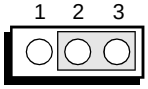
Off: Normal
(Default)

Jumper JP26
Flash EPROM

Jumper JP26 should be set to match the type of Flash EPROM installed on the E586-ICP/E586-IPE system board. See page 2-7 and 2-8 for the location of the Flash EPROM installed on your system board.



1-2 On: Flash EPROM
(Default)



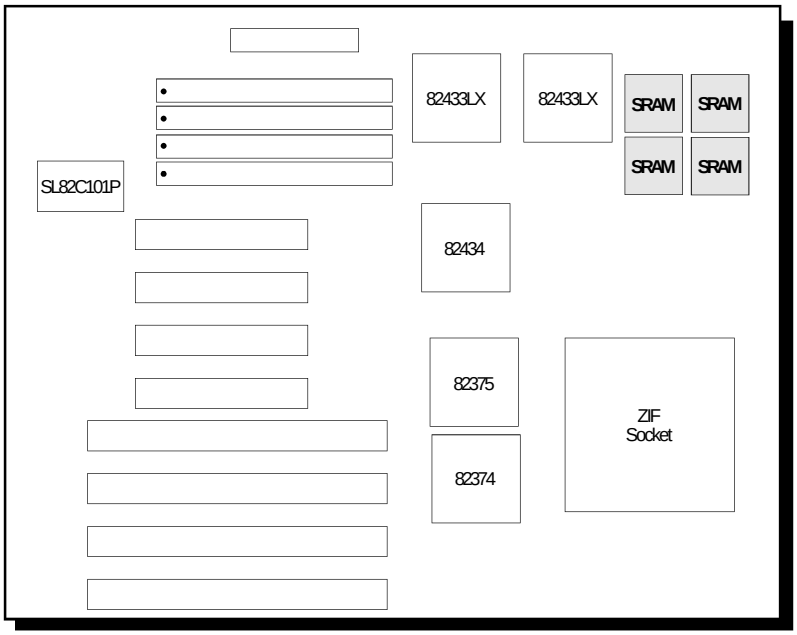
2-3 On: Normal EPROM

Cache Configuration

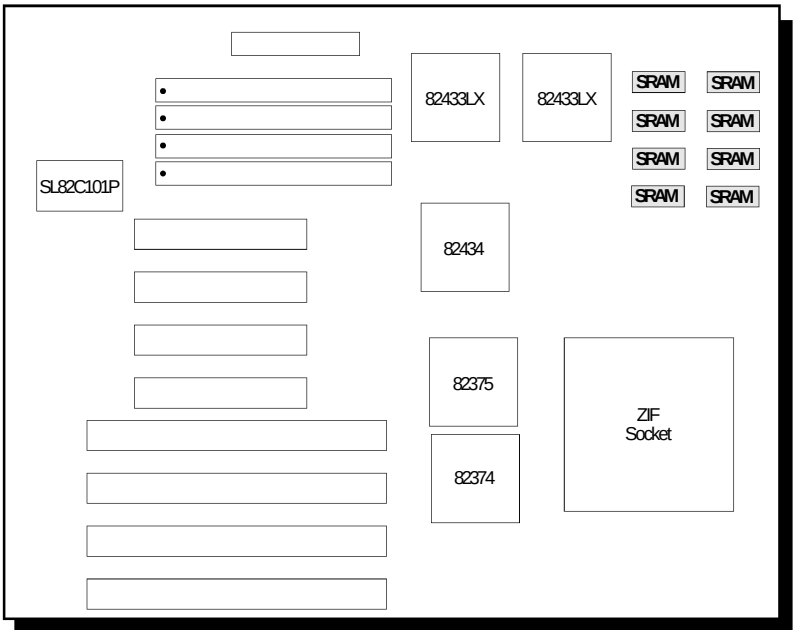
The E586-ICP/E586-IPE system board can be configured to two different cache sizes: 256KB and 512KB. 256KB of cache memory is the default size.

The system board supports direct map write-back or write-through cache subsystem with tag RAM integrated into the chipset.

The E586-ICP uses Burst SRAM for fast 3-1-1-1 Level 2 cache access. The E586-IPE uses Async SRAM for 3-2-2-2 Level 2 cache access.



Locations of the SRAMs on the E586-ICP System Board

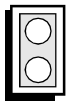


Locations of the SRAMs on the E586-IPE System Board

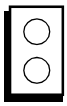
Jumper Setting for Cache Memory

Jumper JP15
Level 1 Cache

The Level 1 cache of the Pentium™ processor supports Write Back and Write Through cache subsystem. Set JP15 as shown below.



On: Write Through

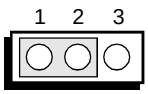


Off: Write Back (Default)

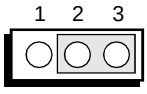
Jumpers JP22 and JP23
Level 2 Cache

If you have upgraded the cache size of your E586-ICP/ E586-IPE system board, change Jumpers JP22 and JP23 as shown below.

L2 Cache	JP22	JP23
512KB	2-3 On	2-3 On
256KB*	1-2 On	2-3 On
None	1-2 On	1-2 On



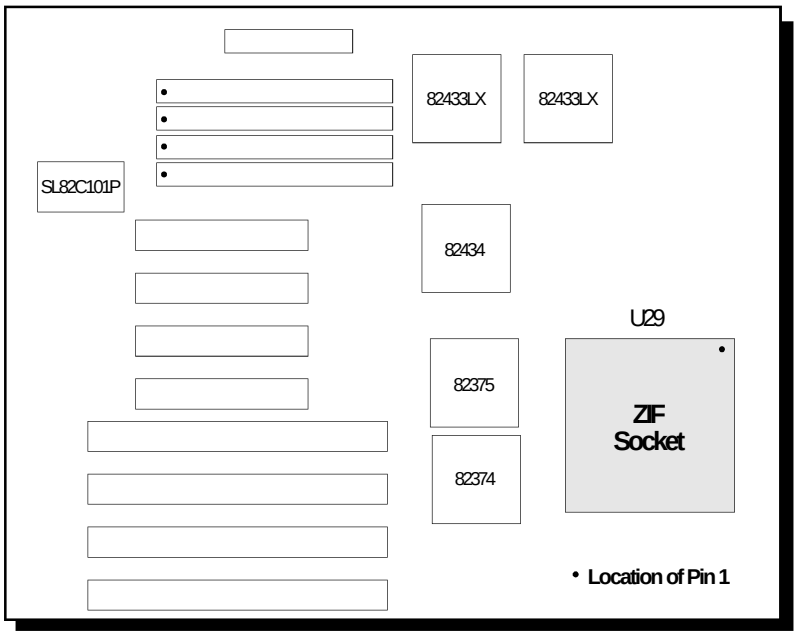
1-2: On



2-3: On

CPU Installation

The E586-ICP/E586-IPE is equipped with a 273-pin Zero Insertion Force (ZIF) socket on location U29 of the system board. Make sure the jumpers are set correctly before applying power, or you may damage the CPU or system board.

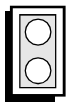


Location of the ZIF Socket on the E586-ICP/E586-IPE System Board

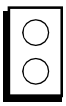
Jumper Settings for CPU

Jumper JP18
CPU Speed

Set Jumper JP18 according to the speed of the CPU installed on the E586-ICP/E586-IPE system board.



On: 60MHz
(Default)



Off: 66MHz

The jumpers below are for factory testing only and should always be set to their default configurations. Reconfiguring these jumpers will cause problems with your E586-ICP or E586-IPE system board.

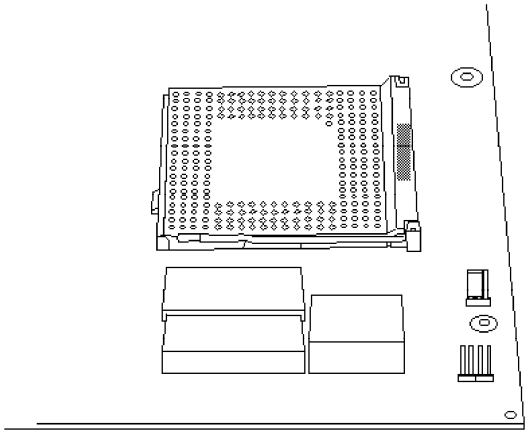
JP10: 2-3 On
JP12: On
JP14 and JP16 : Off
JP17 and JP70: Off (E586-IPE)
JP19-JP21, JP24 & JP25: 2-3 On (E586-ICP)
JP27: Off (E586-ICP)

Installing Upgrade CPUs

The E586-ICP/E586-IPE is equipped with a 273-pin Zero Insertion Force (ZIF) socket at location U29 of the system board.

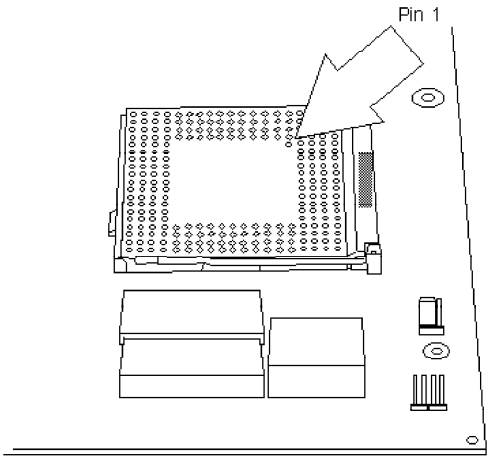
Warning:
Open the socket only if actually installing a CPU. The warranty on the original CPU will be voided if the S/N seal is broken. Installation of the Pentium™ Processor will not affect the original system warranty.

The 273-pin ZIF socket consists of four rows of pin holes on each side.

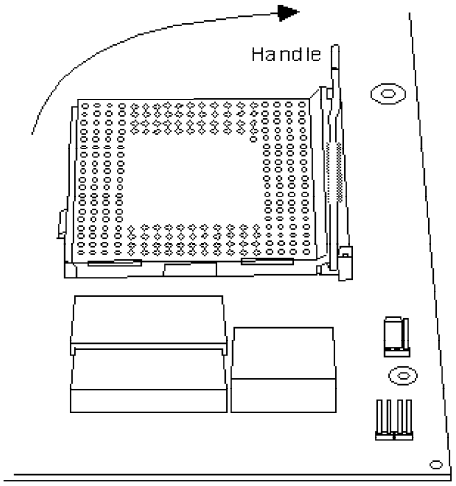


Zero Insertion Force (ZIF) Socket

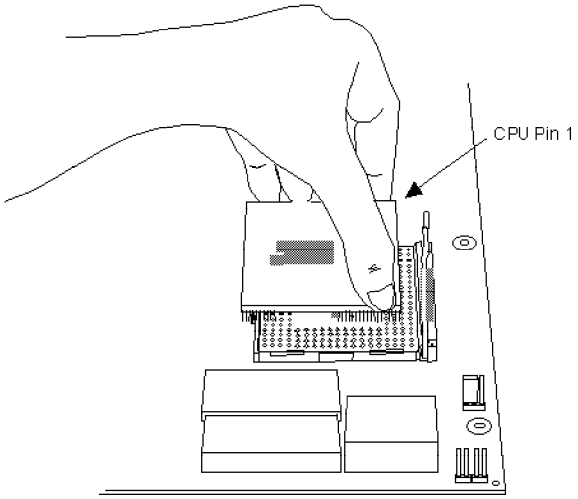
To install, simply move the handle upward. Remove the original CPU from the socket. Position the CPU above the socket. Make sure pin 1 of the CPU is aligned with pin 1 of the socket. Lower the chip until the pins are inserted properly in their corresponding holes.



Pin 1 of the ZIF Socket



Lifting the Handle



Positioning the CPU Above the ZIF Socket

Gently push the handle down until the handle locks into place. You will hear a click when the handle is secure. When you want to remove the chip, simply lift the handle and remove the chip.

Warning:

The cables (floppy drive, hard drive, CD-ROM, etc.) must be routed clear of the CPU with a minimum of 0.25" horizontal clearance to allow heat dissipation.

A minimum of 1.4" vertical clearance (measured above the socket surface) must be kept free above the CPU. Do not run cables or other obstructions in this area.

Adequate airflow for cooling must be provided over the CPU. For Pentium™ Processors, the airflow must be adequate to keep the system temperature below 40°C, measured 0.5 inch above the CPU and assuming a room temperature of 25°C.

Installing the System Board

Before installing the system board into your system unit, you should prepare the tools you will use:

You will need:

- *one medium size, flat-bladed screwdriver*
- *one medium Philips screwdriver*

Step 1

Unlock your system unit. Turn off the power and disconnect all power cords and cables.

Step 2

Remove the system unit cover. Refer to the manufacturer's instructions if necessary.

Step 3

Remove expansion cards seated in any of the expansion slots and detach all connectors from the old system board.

Step 4

Loosen the screws holding the original system board and remove the board from the system. Save the screws.

Step 5

Insert the SIM modules into the SIMM banks on the E586-ICP/E586-IPE. The quantity and location of the SIM modules is dependent upon the memory configuration and type of modules you intend to use.

Step 6

Set the corresponding jumpers.

Step 7

Install the prepared E586-ICP/E586-IPE system board into the case and replace the screws.

Step 8

Reinstall all cards and connectors and replace the system unit cover. Reconnect all power cords and cables.

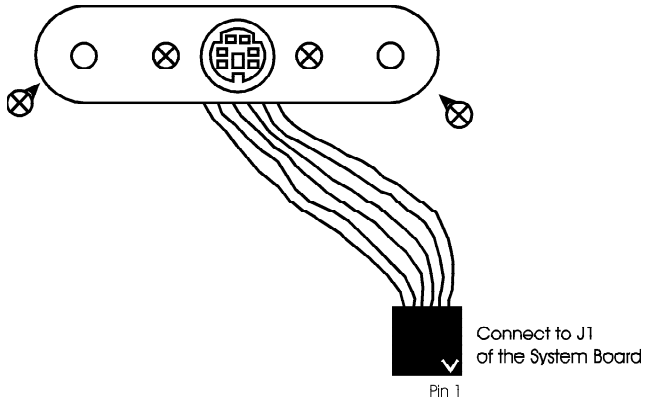
Installing the PS/2 Mouse Port

The E586-ICP/E586-IPE package includes a DB-25S hole cover that holds the PS/2 mouse port attached with a ribbon cable.

To install:

1. Use the two screws provided with the package to secure the DB-25S hole cover to the DB-25S hole normally found at the rear of a system chassis.

2. Connect the cable to Connector J1 of the system board.



❖ Initial Setup Program

After you power up your system, the BIOS message appears on your screen and the memory count begins.

After the memory test, the following message will appear on the screen:

Press CTRL-ALT-ESC/DEL to enter setup

If the message disappears before you respond, restart your system or press the "Reset" button. You may also restart the system by pressing the <Ctrl> <Alt> <Del> keys. If you do not press these keys at the correct time and the system does not boot, the following error message will appear:

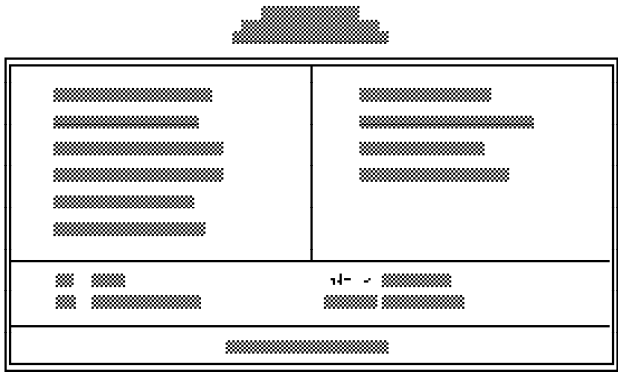
Press F1 to continue, Ctrl-Alt-Esc or Del to enter Setup

If you have set a password and selected "System" in the Security Option of the BIOS Feature Setup menu, you will be prompted for the password everytime the system is rebooted or any time you try to enter Setup. Type in the correct password and press <Enter>.

If you selected "Setup" in the Security Option, you will be prompted for the password only when you try to enter Setup. Refer to the "BIOS Features Setup" section for more information.

Award BIOS CMOS Setup Utility

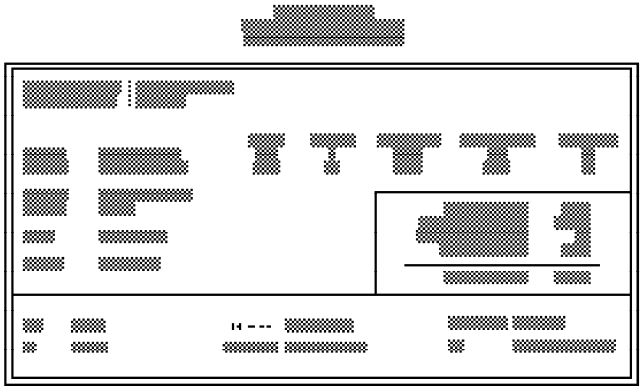
Press <Ctrl> <Alt> <Esc> or <Del> to enter the Setup utility. A screen similar to the one below will appear.



Use the arrow keys to highlight the option you want and press <Enter>.

Standard CMOS Setup

Use the arrow keys to highlight the “Standard CMOS Setup” and press <Enter>, a screen similar to the one on the next page will appear.



Date and Time
Sets the time and date for the system. Press <F3> for the calendar.

Drive C and Drive D
If you have added a hard drive, you must select the appropriate type for the drive. The E586-ICP/E586-IPE has 46 pre-set types and one user-definable type. Use the <Page Up> or <Page Down> keys to select the appropriate type for the drive.

The table in Appendix G gives a complete listing of the available drive types. Any given hard drive must be set to one specific drive-type number. Please refer to your hard drive documentation to find the appropriate type number.

If none of the pre-set types is appropriate for your hard drive, choose "User", which is the user-definable type. To use this type, highlight either hard disk C or D, depending on your hard drive configuration. Use the arrow keys until type "User" is showing. Fill in all the parameters as specified by the drive manufacturer. If either of the drives is not present, select "None" and press <Enter>.

Drive A and Drive B

These options are used to select the type of floppy disk drives installed in your system. If either of the drives is not present, select "None". Make sure you choose the correct drive type; otherwise, your system might improperly format the device.

Video

This is used to select the type of video adapter installed in your system.

Halt on

This option selects when the system will halt if an error is detected during power up.

No Errors: The system boot will not stop for any errors detected.

All Errors: The system will stop whenever the BIOS detects a non-fatal error.

All, But Keyboard: The system will stop for any errors except a keyboard error.

All, But Diskette: The system will stop for any errors except a disk error.

All, But Disk/Key: The system will stop for any errors except a keyboard or disk error.

Memory

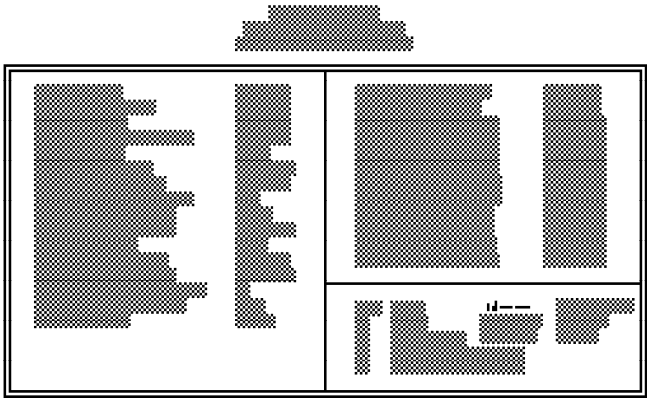
The lower right hand corner shows the base memory size, extended memory size, expanded memory size and the other memory size of your system. You cannot alter these items; your computer automatically detects and displays them.

The Other Memory size refers to the memory located in the 640K to 1024K address space. This is the memory used for different applications. DOS uses this area to load device drivers to keep as much base memory free for application programs. Most use this for the Shadow RAM.

When you are through making changes in the Standard CMOS Setup, press <Esc> to return to the main menu.

BIOS Features Setup

Use the arrow keys to highlight the "BIOS Features Setup" and press <Enter>, a screen similar to the one on the next page will appear.



The Virus Warning option may be set to “enabled” or “disabled”. When enabled, the BIOS issues a warning when any program or virus sends a Disk Format command or attempts to write to the boot sector of the hard disk drive.

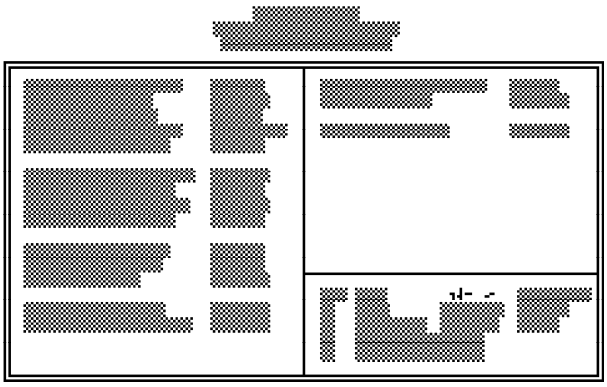
If you choose “System” in the Security Option, you will be prompted for a password every time you cold boot your system or access setup. If you choose “Setup”, you will be prompted for a password only when trying to access setup.

If the changes you made are incorrect or you change your mind, press <F6> or <F7> to return to the default settings. Press <Esc> after making the changes to return to the main menu.

Chipset Features Setup

The E586-ICP/E586-IPE uses the Intel 82430 chipset. The Chipset Features Setup allows you to modify some functions to optimize system performance.

If you press <Enter>, a screen similar to the one below will appear.

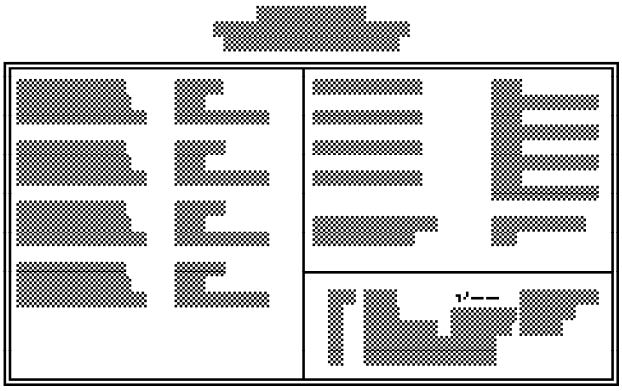


Use the arrow keys to move the highlight bar to the option you wish to change or modify. Use the <Page Up>, <Page Down>, <+> or <-> keys to make the corresponding changes.

If the changes you made are incorrect or you change your mind, press <F6> or <F7> to return to the default settings. Press <Esc> after making the changes to return to the main menu.

PCI Slot Configuration

Use the arrow keys to highlight the "PCI Slot Configuration" and press <Enter>, a screen similar to the one below will appear.



The INT of each PCI slot must be set according to the INT of the PCI add-on card installed on the slot. Subsequently, you must select an IRQ for the INT you have selected for the slot.

Use the arrow keys to move the highlight bar to the option you wish to change or modify. Use the <Page Up>, <Page Down>, <+> or <-> keys to make the corresponding changes.

If the changes you made are incorrect or you change your mind, press <F6> or <F7> to return to the default settings. Press <Esc> after making the changes to return to the main menu.

Load BIOS Defaults

If, for some reason, the CMOS becomes corrupted, the system can be reconfigured with the default values stored in the ROM chips. The BIOS Setup default values should provide optimum performance for the system. You should use these values unless you are possibly having hardware problems.

Highlight this option on the main menu and press <Enter>. The message below will appear.

Load BIOS Defaults (Y/N)? N

Type "Y" and press <Enter> to return to the BIOS setup default values. After pressing <Enter>, you will be returned to the main menu.

Load Setup Defaults

The Setup defaults are similar to the BIOS Setup defaults. These defaults are the most stable values for the system and should be used if you are possibly having hardware problems.

Highlight this option on the main menu and press <Enter>. The message below will appear.

Load Setup Defaults (Y/N)? N

Type "Y" and press <Enter> to return to the Setup default values. After pressing <Enter>, you will be returned to the main menu.

Password Setting

If you want to set a password, make sure that the Security Option under the BIOS Features Setup is set to "System" or "Setup". Refer to the BIOS Features Setup option for more information.

Use the arrow keys to highlight the Password Setting option and press <Enter>. The message below will appear.

Enter Password:

Type in the password. You are limited to eight characters. Type in a password that is eight characters long or shorter. When done, the message below will appear:

Confirm Password:

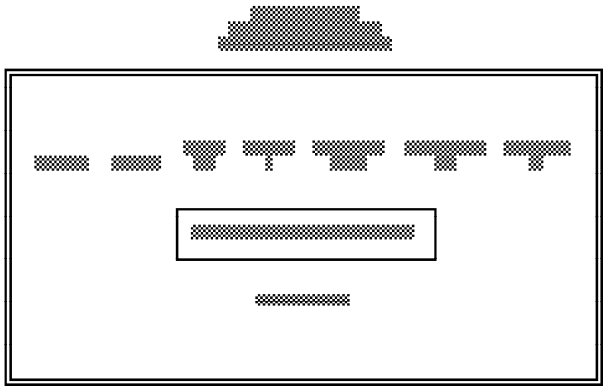
You are asked to verify the password. Type in exactly the same password. If you type in a wrong password, you will be prompted to enter the correct password again. Otherwise, enter a new password.

To delete or disable the password function, simply press <Enter> instead of typing in a new password. If for some reason, you forget your password, a jumper can be set to clear the password. Refer to Jumper .... on page ... for more information.

Press the <Esc> key to return to the main menu.

IDE HDD Auto Detection

This option detects the hard disk parameters for the hard disk drives installed in your system. Highlight this option and press <Enter>. A screen similar to the one below will appear.



The screen displays the parameters detected and allows you to accept or reject the parameters. Type "Y" and press <Enter> to accept the parameters or press <Esc> to abort. If you select "Y", the parameters of the hard disk will be displayed in the Standard CMOS Setup.

Save & Exit Setup

When all the changes have been made, highlight "Save & Exit Setup" and press <Enter>. The message below will appear:

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

Type "Y" and press <Enter>. The following message will appear:

Reboot System (Y/N)? N

Type "Y" and press <Enter>. The modifications you have made will be written into the CMOS memory, and the system will reboot. You will once again see the initial diagnostics on the screen. If you wish to make additional changes to the setup, press <Ctrl> <Alt> <Esc> or <Del> after memory testing is done.

Exit Without Saving

When you do not want to save the changes you have made, highlight this option and press <Enter>. The message below will appear:

Quit Without Saving (Y/N)? N

Type "Y" and press <Enter>. The system will reboot and you will once again see the initial diagnostics on the screen. If you wish to make any changes to the setup, press <Ctrl> <Alt> <Esc> or <Del> after memory testing is done.

❖ EISA Configuration Utility

Overview

The E586-ICP/E586-IPE system board **requires** the use of the EISA Configuration Utility (ECU). The ECU is used to configure EISA (Extended Industry Standard Architecture) computer systems.

EISA system boards and EISA adapter cards are much more complex than the designs of ISA (Industry Standard Architecture) boards and adapter cards, making the setup of jumpers and switches more complicated. The ECU was created to automate this configuration process.

The CFG files that come with each EISA expansion board are copied onto the ECU diskette. The ECU then stores this configuration data in the system's Extended CMOS Memory. The CFG file tells the ECU what choices the user has in configuring the card and what system resources to reserve for the card. The E586-ICP/E586-IPE system board uses the "DFI0400.CFG" file.

File Structure

The ECU uses three different files: the CFG, CMS and INF files.

CFG Files

Each EISA expansion board comes with a CFG file. A board's CFG file contains detailed information about the board as well as the functions the board can perform. For the E586-ICP/E586-IPE system board, choose the "DFI0400.CFG" file to be configured.

CMS File

The CMS file contains a copy of the configuration information that is written into the system's Extended CMOS Memory. Each CMS file should have a corresponding INF file.

INF File

The INF file contains detailed information about a configuration such as switch and jumper settings, software statements, connection statements, and resource allocation. The INF file is used by the "Display/Print" command to recall information on a saved configuration. Each INF file should have a corresponding CMS file.

Initial Configuration

Every EISA system board and expansion board comes with a CFG file. Prior to running the ECU, make sure that all CFG files for expansion boards you are using are in the same directory as the ECU file. If you did not receive the CFG file for your expansion board, please contact your dealer or the board manufacturer.

If you are installing an EISA hard drive controller/SCSI host adapter, you will need to run the ECU from a bootable floppy diskette because the system will not see the hard drive until the EISA expansion board is configured. To run the ECU after the hard drive controller/SCSI host adapter is installed:

1. Create a directory on the disk drive where you want to install the EISA configuration files. Change to this directory.

2. Copy your EISA Configuration Utility diskette and the CFG files for all of your EISA boards to this directory.

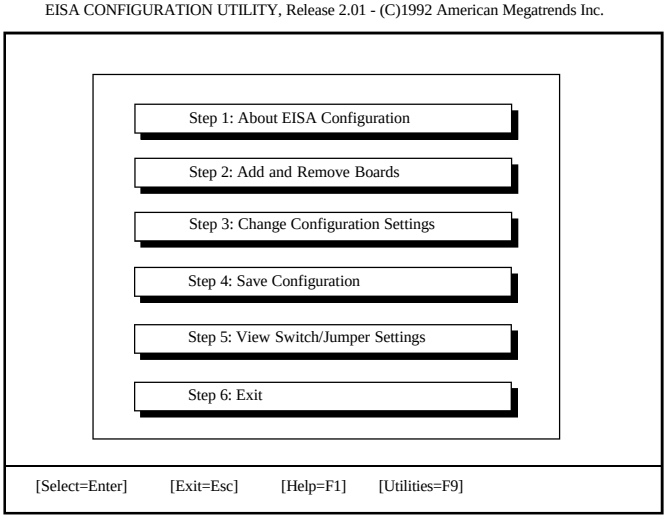
3. To run the ECU, make sure that you are in the directory created in step 1 and type CFG.

Main Menu

The ECU outlines the six steps that involved in configuring a EISA system, steps 1, 2, 3 and 5 are optional. To select a step, use the arrow keys to move to a step of your choice and press <Enter>. You may also select a step by pressing its number. If you are using a mouse, move the mouse pointer to the selected option and click the left-mouse button once.

Note:
For a mouse to work in the ECU, you must have a previously installed mouse driver.

The utility also includes an online Help menu which may be accessed anytime by pressing the <F1> key.



Step 1: About EISA Configuration

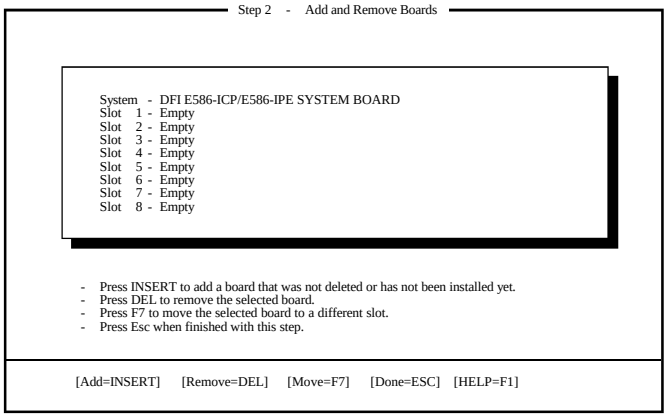
This step displays information for users who are new to EISA and EISA Configuration.

Step 2: Add and Remove Boards

This step is optional. Use this step to manually add or delete boards not detected automatically. Most boards are automatically detected and added by the ECU.

Choose Add and Remove Boards and a screen similar to the one shown on the next page will appear.

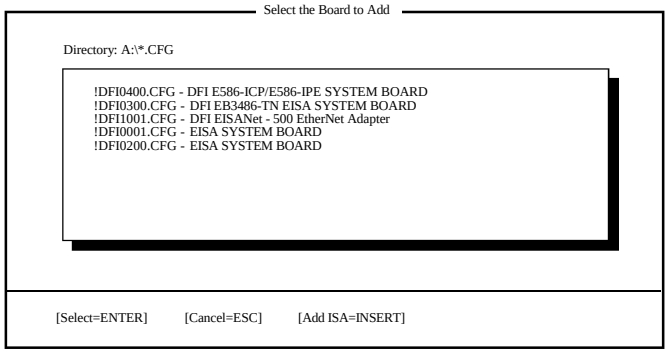
This box allows you to add, remove or move boards.



Add

This option allows you to add a new board to the current configuration.

a. Press <Insert> to select the Add option and a screen similar to the one shown below will appear.

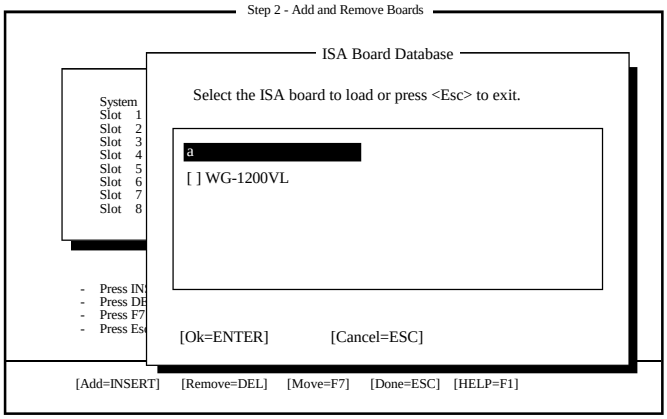


b. Select the board you want to add and press <Enter>.

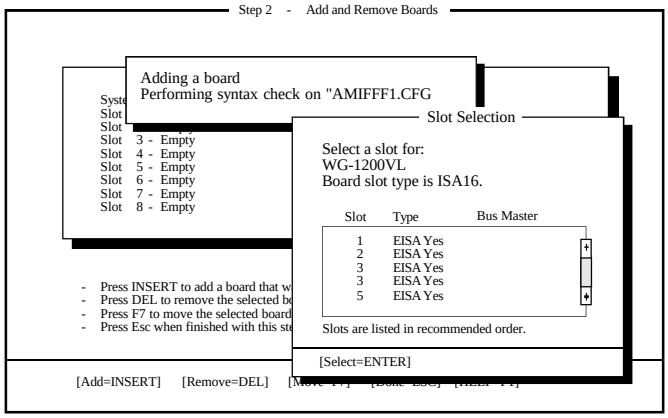
If you wish to add an ISA board, choose Add ISA option by pressing <Insert> at the "Select the Board to Add" screen. An ISA Board Database box similar to the one shown on the screen below will appear.

Note:
You must define an ISA board before it will appear in the ISA Database definition box. See the "Define ISA Board" section for further information.

If you do not want to add a board, choose Cancel to go back to the Add and Remove Boards.



Highlight the board you want to add in the configuration and press <Enter>. A Slot Selection box similar to one shown on the next page will appear.



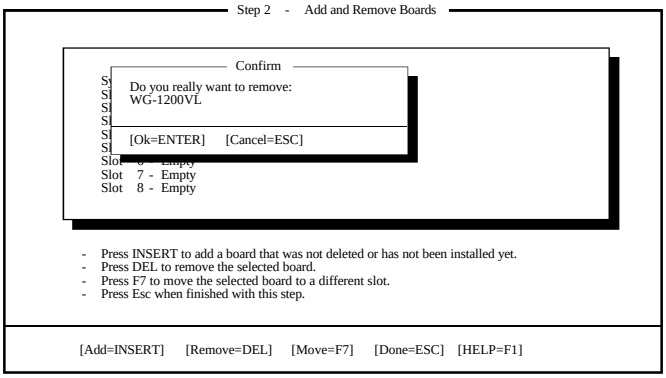
You must select a slot for each adapter board. The slots are listed in the recommended order of preference.

Select the slot that corresponds to the actual slot where the adapter board being configured resides and press <Enter>. Choose OK to continue the configuration process.

Remove

This option allows you to remove a board from the current configuration.

a. Select the board you want to remove from the configuration and press <Delete>. A screen similar to the one shown on the next page will appear.

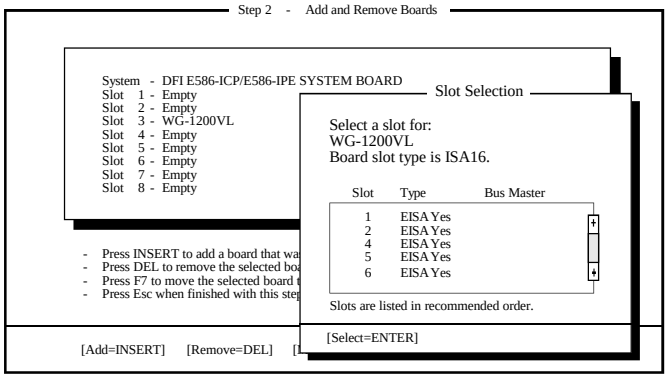


b. Press <Enter> to confirm removal or <Esc> to cancel.

Move

This option allows you to move an adapter board to another slot.

a. Select the board you want to move and press <F7>. A Slot Selection box similar to the one shown on the next page will appear.



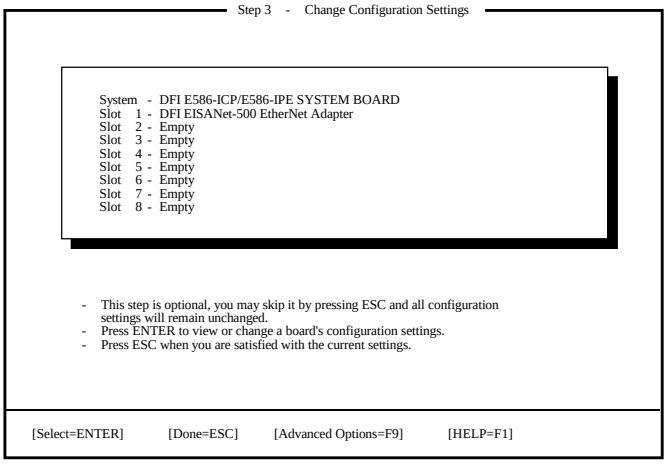
b. Select the slot that corresponds to the actual slot where the adapter board to be moved will reside, and press <Enter>.

c. If you are finish with this step, choose Done to return to the main menu.

Step 3: Change Configuration Settings

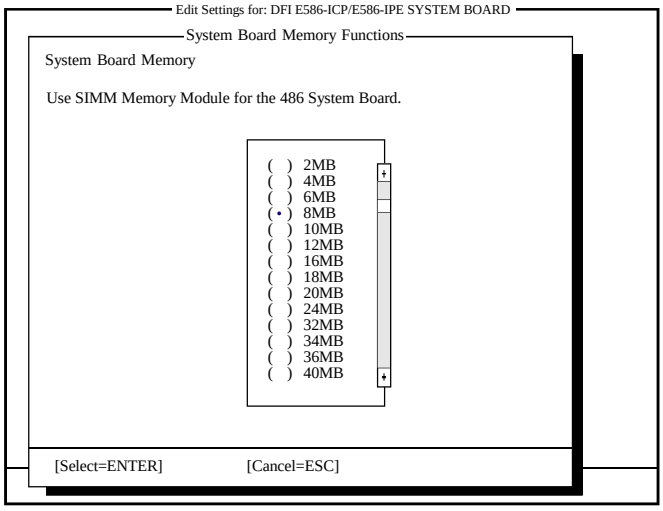
Use this step to view or change configuration settings for any board that is installed. If you skip this step, all settings will remain set to their default values.

1. Choose Change Configuration Settings and a box similar to the one shown on the next page will appear.



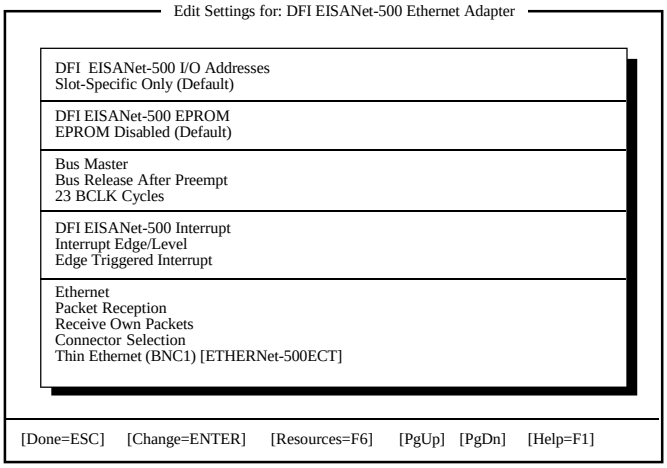
2. Select the slot you want to change from the configuration and press <Enter>.

   a. If you want to change your system memory, choose System Board and press <Enter>. Select System Board Memory and press <Enter>. A System Board Memory Functions box similar to the one shown on the next page will appear. If you do not want to change anything, press <Esc> to go back to the previous screen.



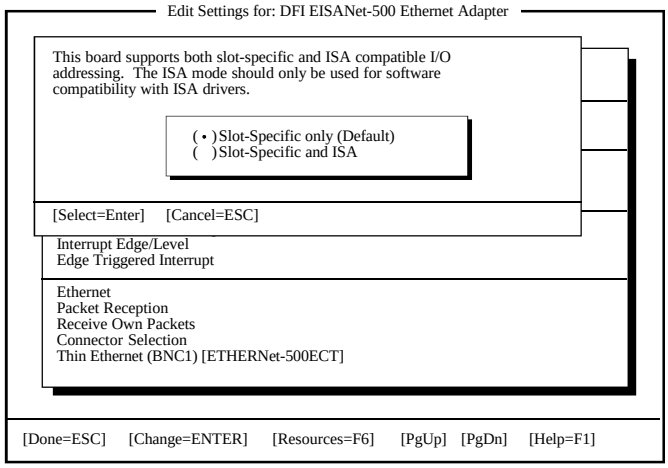
b. Select the memory that was installed in your system board and press <Enter>.

Note:
You can only choose up to a maximum range of 64MB under EISA Configuration.



This menu box contains a list of all “choice” settings and may have one or more resource settings. To change a function’s choice setting:

a. Use the up and down arrow keys to highlight a function and then press <Enter>. The first section “DFI EISANet-500 I/O Addresses” box was already shown on the next page.



b. An option box will appear for you to choose. Choose Slot-Specific Only (Default) and press <Enter>.

c. The same step should be done if you want to change the following functions.

Note:
Some function may only have one choice setting and therefore cannot be changed.

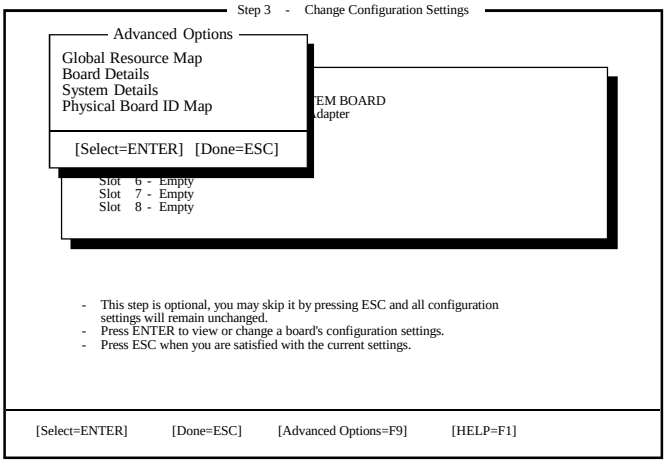
3. To change a function's Resource settings, use the up and down arrow keys to highlight a function and then press <F6>. When you are satisfied with the current settings, press <Esc> to return to the previous menu.

Note:
Not all functions have resource settings.

Advanced Options

This option allows you to view detailed information about the system board and the adapter boards installed in the system.

a. Choose Advanced Options and a box similar to the one shown below will appear.



Global Resource Map

The Global Resource Map allows you to view the DMA Channels, IRQ line, I/O port address and memory address of a board.

Board Details

This option informs you about the slot number, ID and the board slot type of a board.

System Details

This option allows you to view the slot type, the amperage used and EISA CMOS size of the boards installed in the system.

Physical Board ID Map

The Physical Board ID Map allows you to view the boards that are physically present in the system.

b. Press <Esc> to return to the main menu.

Step 4: Save Configuration

This option allows you to save the configuration in the CMS and INF file.

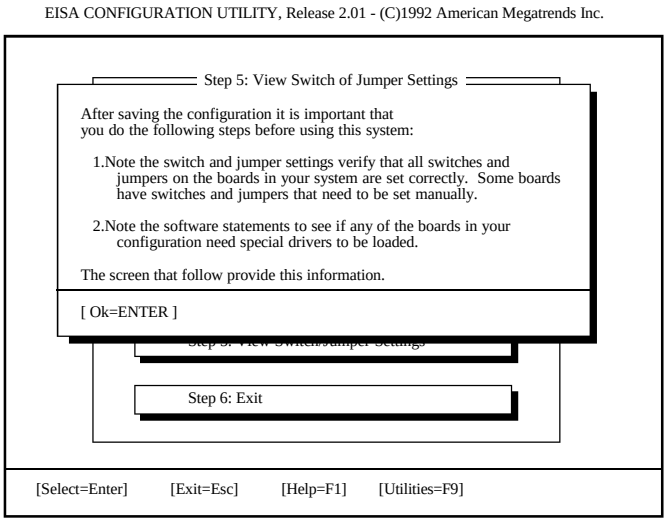
a. After you have finished modifying the configuration, go to the main menu and choose Save Configuration.

b. A box will appear informing you that the configuration has been saved into the INF and CMS file.

Step 5: View Switch/Jumper Settings

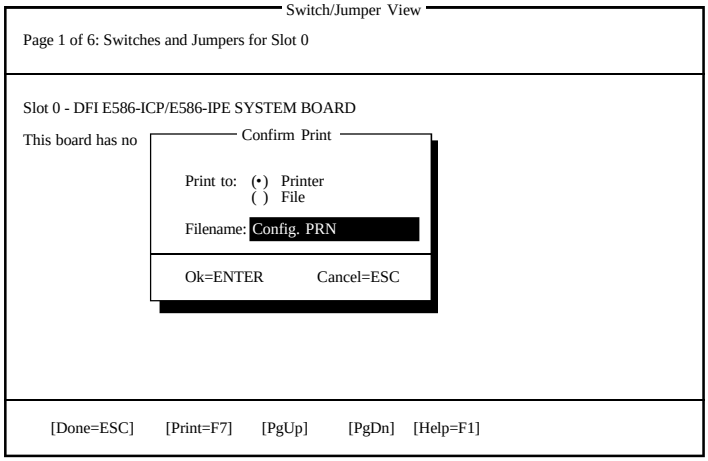
This step allows you to set DIP switches and jumpers on any board that is switch or jumper configurable.

a. After saving the configuration, choose View Switch/ Jumper Settings if you want to configure the switch or jumper from your board. Press <Enter> and a box similar to the one shown below will appear.



b. Press <Enter> to display the information. If your board has no switches or jumpers, a box will appear informing you that the board has no switches or jumpers.

c. To print the configuration, press <F7> and a Confirm Print box similar to the one shown on the next page will appear.



d. Type the filename you want to print and press <Enter>.

e. Press <Esc> to return to the main menu.

Step 6: Exit

This step exits to the operating system. If any configuration settings were changed, you are given the option of rebooting the system so that the system settings will take effect.

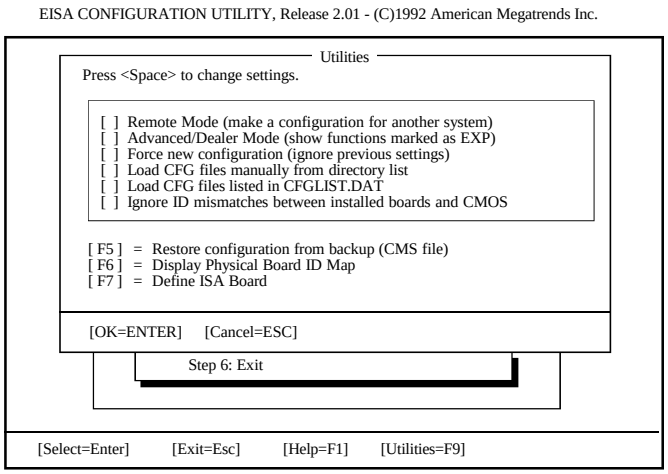
a. From the menu option, choose Exit and press <Enter>. A box will appear asking "Do you really want to exit?"

Choose:
Yes - to exit to DOS.
Cancel - to return to the main menu.
Reboot - Reboot the system so that changes will take effect.

Utilities Configuration

This screen controls how a configuration is produced. Several options are available, each one can be enabled or disabled by pressing SPACE when an option is highlighted. To configure the Utilities:

From the main menu, press <F9> and a Utilities box similar to the one shown below will appear.



Remote Mode

The Remote Mode of the configuration should be turned off if you are working on this computer. If you want to produce a configuration for a computer other than this one, turn on the Remote Mode. If Remote Mode is off, configuration information will be stored in this computer's EISA CMOS RAM as well as a CMS file and INF file.

If Remote Mode is on, the configuration will be stored in the files only. These files can be copied to another computer and the configuration can be copied to that system's EISA CMOS RAM using the "Restore configuration from backup" option on this screen.

Advanced Dealer

Some EISA boards have CFG files that contain option that are not ordinarily configured by end users. If this mode is turned on, any functions that are marked as EXP (expert) will be visible and can be changed.

Force New Configuration

When turned on, this mode will ignore any existing configuration settings in CMOS or in the CMS file. All settings will be set to their defaults.

Load CFG Files Manually from Directory List

When this mode is turned on, the ECU will not automatically detect and add boards to the configuration. You will be prompted to select boards one by one.

Load CFG Files Listed in CFGLIST.DAT

If you prefer to specify a list of CFG files to load, you may create a file called CFGLIST.DAT that contain the filename of the CFG files to be added. Turning this option on causes the ECU to use this file.

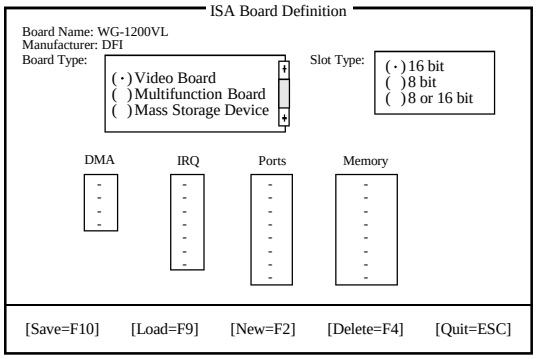
Ignore ID Mismatches Between Installed Boards and CMOS

Normally the ECU will only configure boards that are physically present in the system. If a board was present in a previous configuration but was then physically removed, the ECU will normally not load the CFG files for this board. Turning this option on causes the ECU to load CFG files for all boards that were in the previous configuration regardless of whether or not they are physically installed.

Define ISA Board

In addition to EISA adapter boards, you can install ISA adapter boards by choosing this option. Most ISA adapter boards do not have a CFG file. Without a CFG file, the ECU cannot automatically reserve system resources for ISA adapter boards. These boards must be configured manually. To configure an ISA board:

1. Choose Configure Define ISA Board and an ISA Board Definition box similar to the one shown below will appear.



2. Highlight "Board Name" and press <Enter>. The cursor will appear for you to type-in the name of the board. After typing-in the board name, press <Enter>.

3. Highlight "Manufacturer" and press <Enter>. The cursor will appear for you to type-in the name of the manufacturer. After typing-in the manufacturer's name, press <Enter>.

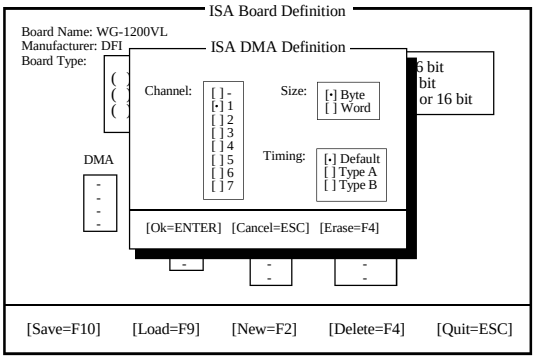
4. Highlight "Board Type" and press <Enter>. Select the appropriate option for the board and press <Enter>.

5. Highlight "Slot Type" and press <Enter>. Select the slot type appropriate for the board and press <Enter>.

6. It is necessary to define an ISA board when you want to prevent other boards in the system from using the same IRQ levels, DMA channels, I/O Port address or Memory address that your ISA board uses.

   "DMA" allows you to define up to four (4) DMA channels.

   a. Select one of the DMA options and press <Enter>. The ISA DMA Definition box similar to the one shown on the next page will appear.



b. Move the cursor to the appropriate DMA channel, size and timing of the ISA board, and press <Enter>.

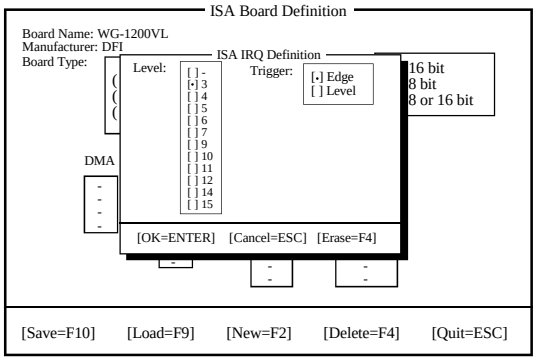
c. Choose OK to save the changes you have just made.

d. Choose Erase to delete the previously saved DMA definition.

e. Choose Cancel to return to the ISA Board Definition box without saving the changes.

7. "IRQ" allows you to define up to seven (7) IRQ levels. Select one of the IRQ options and press <Enter>.

   a. An ISA IRQ Definition box similar to the one shown below will appear.



   b. Select the appropriate IRQ level and type of interrupt trigger to be used. Press <Enter>.

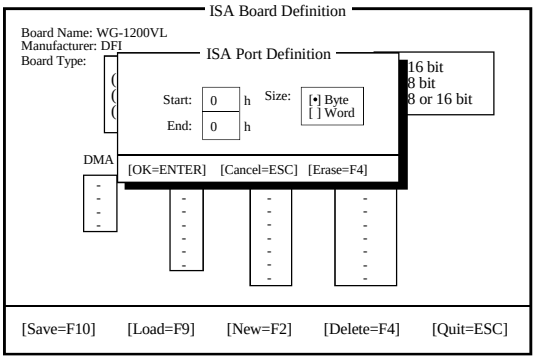
   c. Choose OK to save the changes you have just made.

   d. Choose Erase to delete the previously saved IRQ definition.

   e. Choose Cancel to return to the ISA Board Definition box without saving the changes.

8. “Ports” allows you to define up to eight (8) ranges of I/O ports addresses.

   a. Select one of the I/O Port options and press <Enter>. The ISA Port Definition box similar to the one shown below will appear.



   b. Select the starting and ending port address and the timing setting of the selected port address. Press <Enter>.

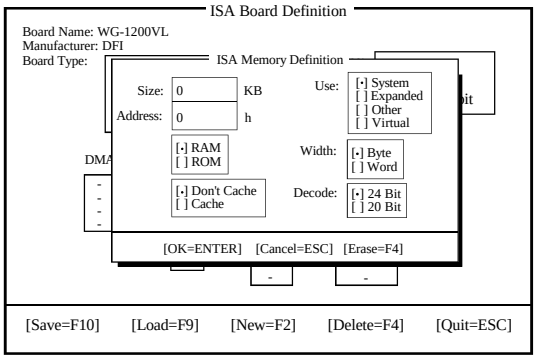
   c. Choose OK to save the changes you have just made.

   d. Choose Erase to delete the previously saved Port definition.

   e. Choose Cancel to return to the ISA Board Definition box without saving the changes.

9. "Memory" allows you to define up to eight (8) memory addresses.

   a. Select one of the Memory options and press <Enter>. An ISA Memory Definition box similar to the one shown below will appear.



   b. Select the appropriate options in the ISA Memory Definition box and press <Enter>.

   c. Choose OK to save the changes you have just made.

   d. Choose Erase to delete the previously saved Memory definition.

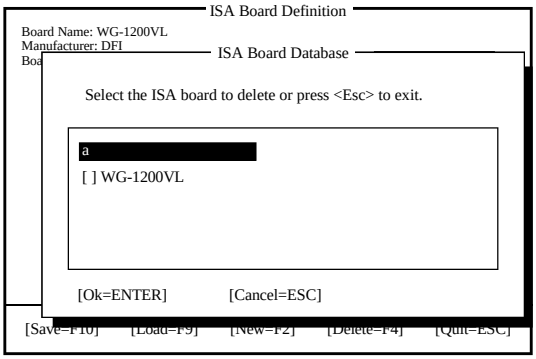
   e. Choose Cancel to return to the ISA Board Definition box without saving the changes.

10. After you have finished configuring the board, choose Save to save the configuration in an ISA CFG file.

11. Choose Load to edit a previously saved ISA CFG file. A Load ISA Board Definition box will appear. Highlight the ISA board to be edited and press <Enter>.

12. Choose New to start a new ISA board configuration.

13. Choose Delete to remove an ISA board definition from the ECU's internal ISA board database. An ISA Board Database box similar to the one shown below will appear.



14. Quit returns you to the main menu without saving any changes.

❖ Troubleshooting Checklist

If you experience difficulty with the E586-ICP/E586-IPE system board, please refer to the checklist below. If you still cannot isolate the problem, please contact your dealer.

1) Check the jumper settings to ensure that the jumpers are properly set. If in doubt, refer to the "Board Configuration" section.

2) Verify that all SIM modules are seated securely into the bank sockets.

3) Make sure that the SIM modules are in the correct locations.

4) Check that all populated memory banks are filled with valid size HSIMMs.

5) If your board fails to function, place the board on a flat surface and seat all socketed components (gently press each component into the socket).

❖ Appendix A: Types of Modules

The E586-ICP/E586-IPE system board allows you to populate memory with 256Kx36, 512Kx36, 1Mx36, 2Mx36, 4Mx36 and 8Mx36 HSIM modules. The following modules have been tested with this board. Most untested brands will work but a few may fail to do so.

For HSIM 256Kx36 Modules

Brand	Chip Number
OKI	M51C256A-70

For HSIM 512Kx36 Modules

Brand	Chip Number
OKI	M514256B-70J

For HSIM 1Mx36 Modules

Brand	Chip Number
Toshiba	TC511000AJL
OKI	GT-1M*36B
Fujitsu	81C1000A-70

For HSIM 2Mx36 Modules

Brand	Chip Number
OKI	M511000B

For HSIM 4Mx36 Modules

Brand	Chip Number
OKI	M514100A-70S

For HSIM 8Mx36 Modules

Brand	Chip Number
OKI	M514100AL-70K

❖ Appendix B: System Error Report

POST (hex)	Name	Description
C0	Turn off chipset cache	OEM specific-cache control.
1	Processor test 1	Processor status (1FLAGS) verification. Test the following processor status flags carry, zero, sign, overflow. The BIOS will set each of these flags, verify they are set, then turn each flag off and verify it is off.
2	Processor test 2	Read/Write/Verify all CPU registers except SS,SP and BP with data pattern FF and 00.
3	Initialize chips	Disable NMI, PIE, AIE, UEI, SQWV. Disable video, parity checking, DMA. Reset math coprocessor. Clear all page registers, CMOS shutdown byte. Initialize timer 0, 1 and 2, including set EISA timer to a known state. Initialize DMA controllers 0 and 1. Initialize interrupt controllers 0 and 1. Initialize EISA extended registers.
4	Test memory refresh toggle	RAM must be periodically refreshed in order to keep the memory from decaying. This function assures that the memory refresh function is working properly.
5	Blank video, initialize keyboard	Keyboard controller initialization.
6	Reserved	
7	Test CMOS interface and battery status	Verifies CMOS is working correctly, detects bad battery.

POST (hex)	Name	Description
BE	Chipset default initialization	Program chipset registers with power on BIOS defaults.
C1	Memory presence test	OEM Specific-Test to size on-board memory.
C5	Early shadow	OEM Specific-Early Shadow enable for fast boot.
C6	Cache presence test	External cache size detection.
8	Setup low memory	Early chip set initialization. Memory presence test. OEM chip set routines. Clear low 64K of memory. Test first 64K memory.
9	Early cache initialization	Cyrix CPU initialization. Cache initialization.
A	Setup interrupt vector table	Initialize first 120 interrupt vectors with SPURIOUS_INT_HDLR and initialize INT 00h-1Fh according to INT_TBL.
B	Test CMOS RAM checksum	Test CMOS RAM checksum, if bad, or insert key pressed, load defaults.
C	Initialize keyboard	Detect type of keyboard controller (optional). Set NUM_LOCK status.
D	Initialize video interface	Detect CPU clock. Read CMOS location 14h to find out type of video in use. Detect and initialize video adapter.
E	Test video memory	Test video memory, write sign-on message to screen. Setup shadow RAM - Enable shadow according to Setup.

POST (hex)	Name	Description
F	Test DMA controller 0	BIOS checksum test. Keyboard detect and initialization.
10	Test DMA controller 1	
11	Test DMA page registers	Test DMA page registers.
12-13	Reserved	
14	Test timer counter 2	Test 8254 timer 0 counter 2.
15	Test 8259-1 mask bits	Verify 8259 channel 1 masked interrupts by alternately turning off and on the interrupt lines.
16	Test 8259-2 mask bits	Verify 8259 channel 2 masked interrupts by alternately turning off and on the interrupt lines.
17	Test stuck 8259's interrupt bits	Turn off interrupts then verify no interrupt mask register is on.
18	Test 8259 interrupt functionality	Force an interrupt and verify the interrupt occurred.
19	Test stuck NMI bits (Parity/IO check)	Verify NMI can be cleared.
1A		Display CPU clock.
1B-1E	Reserved	
1F	Set EISA mode	If EISA non-volatile memory checksum is good, execute EISA initialization. If not, execute ISA tests and clear EISA mode flag. Test EISA Configuration Memory Integrity (checksum & communication interface).

POST (hex)	Name	Description
20	Enable slot 0	Initialize slot 0 (system board).
21-2F	Enable slots 1 - 15	Initialize slots 1 through 15.
30	Size base and extended memory	Size base memory from 256K to 640K and extended memory above 1MB.
31	Test base and extended memory	Test base memory from 256K to 640K and extended memory above 1MB using various patterns. Note: This will be skipped in EISA mode and can be "skipped" with ESC key in ISA mode.
32	Test EISA extended memory	If EISA mode flag is set then test EISA memory found in slots initialization. Note: This will be skipped in ISA mode and can be "skipped" with Esc key in EISA mode.
33-3B	Reserved	
3C	Setup enabled	
3D	Initialize and install mouse	Detect if mouse is present, initialize mouse, install interrupt vectors.
3E	Setup cache controller	Initialize cache controller.
3F	Reserved	
BF	Chipset initialization	Program chipset registers with Setup values.
40		Display virus protest disable or enable.
41	Initialize floppy drive and controller	Initialize floppy disk drive controller and any drives.

POST (hex)	Name	Description
42	Initialize hard drive and controller	Initialize hard drive controller and any drives.
43	Detect and initialize serial/parallel ports	Initialize any serial and parallel ports (also game port).
44	Reserved	
45	Detect and initialize math coprocessor	Initialize math coprocessor.
46	Reserved	
47	Reserved	
48-4D	Reserved	
4E	Manufacturing POST Loop or Display Messages	Reboot if manufacturing POST loop pin is set. Otherwise display any messages (i. e. any non-fatal errors that were detected during POST) and enter Setup.
4F	Security check	Ask password security (optional).
50	Write CMOS	Write all CMOS values back to RAM and clear screen.
51	Pre-boot enable	Enable parity checker. Enable NMI, enable cache before boot.
52	Initialize option ROMs	Initialize any option ROMs present from C8000h to EFFFFh. Note: When FSCAN option is enabled, will initialize from C8000h to F7FFFh.
53	Initialize time value	Initialize time value in 40h: BIOS area.
60	Setup virus protect	Setup virus protect according to Setup.
61	Set boot speed	Set system speed for boot.

POST (hex)	Name	Description
62	Setup NumLock	Setup NumLock status according to Setup.
63	Boot attempt	Set low stack. Boot via INT 19h.
B0	Spurious	If interrupt occurs in protected mode.
B1	Unclaimed NMI	If unmasked NMI occurs, display Press F1 to disable NMI, F2 reboot.
E1-EF	Setup pages	E1-Page 1, E2-Page 2, etc.
FF	Boot	

❖ Appendix C: Memory & I/O Maps

Memory Address Map

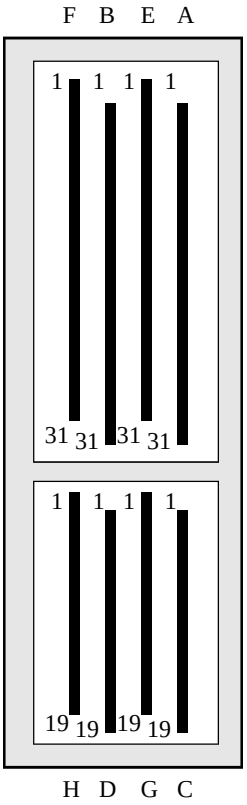
Address	Name	Function
0000000 to 009FFFF	640K System Board RAM	System Board Memory
00A0000 to 00BFFFF	128K Video Display Memory	Reserved for Graphics Display Memory
00C0000 to 00EFFFF	192K I/O Expansion ROM	Reserved for ROM on I/O Adapter Card
00F0000 to 00FFFFF	64K ROM on the System Board	System Board BIOS
0100000 to 3FFFFFF	Maximum Memory 128M	System Board Memory

I/O Address Map

I/O Address	Function
000-01F	DMA Controller 1, 8237A-5
020-03F	Interrupt Controller 1, 8259A, Master
040-05F	Timer, 8254-2
060-06F	8742 (Keyboard Controller)
070-07F	Real-time Clock, NMI (Non-maskable Interrupt) Mask
080-09F	DMA Page Memory, 74LS612
0A0-08F	Interrupt Controller 2, 8259A
0C0-0DF	DMA Controller 2, 8237A-5
0E8	Shadow RAM and Cache Control Bit
0F0	Clear Numeric Processor Extension Busy
0F1	Reset Numeric Processor Extension
0F8-0FF	Numeric Processor Extension
1F0-1F8	Fixed Disk
200-207	Game I/O
278-27F	Parallel Printer Port 2
2F8-2FF	Serial Port 2
300-31F	Prototype Card
360-36F	Reserved
378-37F	Parallel Printer Port 1
380-38F	SDLC, Bisynchronous 2
3A0-3AF	Bisynchronous 1
3B0-3BF	Monochrome Display and Printer Adapter
3C0-3CF	Reserved
3D0-3DF	Color/Graphics Monitor Adapter
3F0-3F7	Diskette Controller
3F8-3FF	Serial Port 1

Note:
The I/O address hex 000 to 0FF are reserved for the system board I/0. Hex 100 to 3FF are available on the I/O channels.

❖ Appendix D: EISA I/O Pin Assignments



Note:
Rows A, C, B and D are ISA contacts
Rows E,G, F and H are EISA contacts

I/O Pin	Signal Name	I/O
E1	-CMD	O
E2	-Start	I/O
E3	Exrdy	I/O
E4	-EX32	I/O
E5	Gnd	Gnd
Access Key		
E7	-EX16	I/O
E8	-SLBurst	I
E9	-MSBurst	I/O
E10	W-R	I/O
E11	Gnd	Gnd
E12	Reserved	
E13	Reserved	
E14	Reserved	
E15	Gnd	Gnd
Access Key		
E17	-BE1	I/O
E18	-LA31	I/O
E19	Gnd	Gnd
E20	-LA30	I/O
E21	-LA28	I/O
E22	-LA27	I/O
E23	-LA25	I/O
E24	Gnd	Gnd
Access Key		
E26	LA15	I/O
E27	LA13	I/O
E28	LA12	I/O
E29	LA11	I/O
E30	Gnd	Gnd
E31	LA9	I/O
F1	Gnd	Gnd
F2	+5V	Power
F3	+5V	Power
F4	XXXXXX	
F5	XXXXXX	
Access Key		

I/O Pin	Signal Name	I/O
F7	XXXXXX	
F8	XXXXXX	
F9	+12	Power
F10	MHO	I/O
F11	-Loc	O
F12	Reserved	
F13	Gnd	Gnd
F14	Reserved	
F15	-BE3	I/O
Access Key		
F17	-BE2	I/O
F18	-BE0	I/O
F19	Gnd	Gnd
F20	+5V	Power
F21	-LA29	I/O
F22	Gnd	Gnd
F23	-LA26	I/O
F24	-LA24	I/O
Access Key		
F26	-LA16	I/O
F27	-LA14	I/O
F28	+5V	Power
F29	+5V	Power
F30	Gnd	Gnd
F31	LA10	I/O
G1	LA7	I/O
G2	Gnd	Gnd
G3	LA4	I/O
G4	LA3	I/O
G5	Gnd	Gnd
Access Key		
G7	SD17	I/O
G8	SD19	I/O
G9	SD20	I/O
G10	SD22	I/O

I/O Pin	Signal Name	I/O
G11	Gnd	Gnd
G12	SD25	I/O
G13	SD26	I/O
G14	SD28	I/O
Access Key		
G16	Gnd	Gnd
G17	SD30	I/O
G18	SD31	I/O
G19	MREQ	I
H1	LA8	I/O
H2	LA6	I/O
H3	LA5	I/O
H4	+5V	Power
H5	LA2	I/O
Access Key		
H7	SD16	I/O
H8	SD18	I/O
H9	Gnd	Gnd
H10	SD21	I/O
H11	SD23	I/O
H12	SD24	I/O
H13	Gnd	Gnd
H14	SD27	I/O
Access Key		
H16	SD29	I/O
H17	+5V	Power
H18	+5V	Power
H19	MAK	O

❖ Appendix E: PCI I/O Pin Assignments

Component Side	B		A	Solder Side
	-12V	- 01 -	TRST#	
	TCK	- 02 -	+12V	
	Ground	- 03 -	TMS	
	TDO	- 04 -	TDI	
	+5V	- 05 -	+5V	
	+5V	- 06 -	INTA#	
	INTB#	- 07 -	INTC#	
	INTD#	- 08 -	+5V	
	PRSNT1#	- 09 -	Reserved	
	Reserved	- 10 -	+5V (I/O)	
	PRSNT2#	- 11 -	Reserved	
	Ground	- 12 -	Ground	
	Ground	- 13 -	Ground	
	Reserved	- 14 -	Reserved	
	Ground	- 15 -	RST#	
	CLK	- 16 -	+5V (I/O)	
	Ground	- 17 -	GNT#	
	REQ#	- 18 -	Ground	
	+5V (I/O)	- 19 -	Reserved	
	AD[31]	- 20 -	AD[30]	
	AD[29]	- 21 -	+3.3V	
	Ground	- 22 -	AD[28]	
	AD[27]	- 23 -	AD[26]	
	AD[25]	- 24 -	Ground	
	+3.3V	- 25 -	AD[24]	
	C/BE[3]#	- 26 -	IDSEL	
	AD[23]	- 27 -	+3.3V	
	Ground	- 28 -	AD[22]	
	AD[21]	- 29 -	AD[20]	
	AD[19]	- 30 -	Ground	
	+3.3V	- 31 -	AD[18]	
	AD[17]	- 32 -	AD[16]	
	C/BE[2]#	- 33 -	+3.3V	
	Ground	- 34 -	FRAME#	
	IRDY#	- 35 -	Ground	
	+3.3V	- 36 -	TRDY#	
	DEVSEL#	- 37 -	Ground	
	Ground	- 38 -	STOP#	
	LOCK#	- 39 -	+3.3V	
	PERR#	- 40 -	SDONE	
	+3.3V	- 41 -	SBO#	
	SERR#	- 42 -	Ground	
	+3.3V	- 43 -	PAR	
	C/BE[1]#	- 44 -	AD[15]	
	AD[14]	- 45 -	+3.3V	
	Ground	- 46 -	AD[13]	
	AD[12]	- 47 -	AD[11]	
	AD[10]	- 48 -	Ground	
	Ground	- 49 -	AD[09]	
	AD[08]	- 52 -	C/BE[0]#	
	AD[07]	- 53 -	+3.3V	
	+3.3V	- 54 -	AD[06]	
	AD[05]	- 55 -	AD[04]	
	AD[03]	- 56 -	Ground	
	Ground	- 57 -	AD[02]	
	AD[01]	- 58 -	AD[00]	
	+5V (I/O)	- 59 -	+5V (I/O)	
	ACK64#	- 60 -	REQ64#	
	+5V	- 61 -	+5V	
	+5V	- 62 -	+5V	

❖ *Appendix F: Connector Pin Assignments*

Connector J1
PS/2 Mouse Connector

Pin	Function
1	Mouse Data
2	Reserved
3	Ground
4	+5V
5	Mouse Clock
6	Reserved

Connector J2 (optional)
IDE Hard Disk Drive Connector

Pin	Function
1	-Reset
2	Ground
3	D7
4	D8
5	D6
6	D9
7	D5
8	D10
9	D4
10	D11
11	D3
12	D12

Pin	Function
13	D2
14	D13
15	D1
16	D14
17	D0
18	D15
19	Ground
20	Reserved
21	Reserved
22	Ground
23	-IOW
24	Ground
25	-IOR
26	Ground
27	Reserved
28	BALE
29	Reserved
30	Ground
31	IRQ14
32	IOCS16
33	SA1
34	Reserved
35	SA0
36	SA2
37	HCS0
38	HCS1
39	LED
40	Ground

Connector J3
IDE LED

Pin	Function
1	LED (+)
2	LED (-)

Connector J4
Keylock Connector

Pin	Function
1	LED Signal
2	Reserved
3	Ground
4	Keylock Signal
5	Ground

Connector J6
Speaker Connector

Pin	Function
1	Signal
2	Connector to Buzzer
3	Ground
4	+5V

Connector J7
Reset Switch Connector

Pin	Function
1	Reset
2	Ground

Connector JP2
Legacy Connector

Pin	Function
1	NC
2	IRQ1
3	IRQ5
4	IRQ14
5	IRQ15
6	IRQ6
7	IRQ7
8	IRQ8-
9	IRQ9
10	IRQ10
11	IRQ11
12	IRQ12
13	IRQ3
14	IRQ4

Connector JP28
Fan Connector

Pin	Function
1	+12V
2	Ground
3	Ground
4	+5V

Connectors PL1 and PL2
Power Connectors

Pin	Function
1	Power Good
2	+5V
3	+12V
4	-12V
5	Ground
6	Ground
7	Ground
8	Ground
9	-5V
10	+5V
11	+5V
12	+5V

❖ Appendix G: Award BIOS Hard Disk Table

Type	Size (MB)	Cylinders	Heads	Sectors	Write Precomp	Land Zone	Example Model
1	10	306	4	17	128	305	TEAC SD510, MMI 112, 5412
2	20	615	4	17	300	615	Seagate ST225, ST4026
3	30	615	6	17	300	615	
4	62	940	8	17	512	940	
5	46	940	6	17	512	940	
6	20	615	4	17	None	615	Seagate ST125, Tandon TM262
7	30	462	8	17	256	511	
8	30	733	5	17	None	733	Tandon TM 703
9	112	900	15	17	None	901	
10	20	820	3	17	None	820	
11	35	855	5	17	None	855	
12	49	855	7	17	None	855	
13	20	306	8	17	128	319	Disctron 526, MMI M125
14	42	733	7	17	None	733	
15				(Reserved)			
16	20	612	4	17	0	663	Microscience HH725, Syquest 3250, 3425
17	40	977	5	17	300	977	
18	56	977	7	17	None	977	
19	59	1024	7	17	512	1023	
20	30	733	5	17	300	732	
21	42	733	7	17	300	732	
22	30	306	5	17	300	733	Seagate ST4038
23	10	977	4	17	0	336	
24	40	1024	5	17	None	976	Seagate ST4051
25	76	1224	9	17	None	1023	Seagate ST4096
26	71	1224	7	17	None	1223	Maxtor 2085
27	111	1224	11	17	None	1223	Maxtor 2140, Priam S14
28	152	1024	15	17	None	1223	Maxtor 2190, Priam S19

Type	Size (MB)	Cylinders	Heads	Sectors	Write Precomp	Land Zone	Example Model
29	68	1024	8	17	None	1023	Maxtor 1085, Micropolis 1325
30	93	918	11	17	None	1023	Maxtor 1105 1120, 4780
31	83	925	11	17	None	1023	Maxtor 1170
32	69	1024	9	17	None	926	CDC 9415
33	85	1024	10	17	None	1023	
34	102	1024	12	17	None	1023	
35	110	1024	13	17	None	1023	
36	119	1024	14	17	None	1023	
37	17	1024	2	17	None	1023	
38	136	1024	16	17	None	1023	
39	114	918	15	17	None	1023	Maxtor 1140, 4380
40	40	820	6	17	None	820	Seagate ST251
41	42	1024	5	17	None	1023	Seagate 4053 Miniscribe 3053/6053
42	65	1024	5	26	None	1023	Miniscribe 3053/6053 RLL
43	40	809	6	17	None	852	Miniscribe 3650
44	61	809	6	26	None	852	Miniscribe 3675 RLL
45	100	776	8	33	None	775	Conner CP3104
46	203	684	16	38	None	685	Conner CP3204
User							

E586-ICP/E586-IPE
System Board
User's Manual

- 21840429 -