EB3486-TN
Station Board
User's Manual

❖ *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 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 modifications not expressly approved by the party responsible 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 ❖

Read Me First

The EB3486-TN 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 6-1 for more detailed information.

❖ *Introduction*

The EB3486-TN is a revolutionary station board based on our own Processor Upgradeable Microcomputer Architecture (PUMA) platform. It's unique design allows you to use either a 486SX, 486DX or 486DX2 CPU at any speed on the station board. This is accomplished by installing the CPU on a CPU module that plugs directly into the station board, thus making it easy and affordable to upgrade.

The EB3486-TN station board is equipped with one VESA compliant local bus slot for use with local bus video or network cards. Any future VESA local-bus products will also work. In addition to the VESA local bus slot, the station board also has eight 32-bit EISA (Extended Industry Standard Architecture) expansion slots and one CPU module slot.

EISA extends the operational capabilities of the ISA (Industry Standard Architecture) standard while maintaining compatibility with ISA expansion boards. The EISA Configuration Utility (ECU) must be installed and run to configure the board and the EISA expansion boards that will be inserted in the EISA expansion slots.

If you have a DBII-486CSX or DBII-486CDX/DX2 CPU module, the system will consist of two levels of cache memory for fast local access of frequently accessed code and data. The first level, or internal cache, is built-in to the CPU with 8KB of cache memory. The second level, or external cache, can support 32KB/64KB of cache memory using 8Kx8 (25ns) SRAMs or 128KB/256KB of
cache memory using 32Kx8 (25ns) SRAMs. The DBII-486SX or DBII-486DX/DX2 CPU modules only

support internal cache.
The EB3486-TN station board uses 256Kx36, 512Kx36, 1Mx36, 2Mx36, 4Mx36, 8Mx36, 16Mx36 and 32Mx36 SIM modules with speeds of 70ns or 80ns. It can hold 128MB of memory onboard configurable in 30 different sizes.

System support functions include system BIOS and VGA BIOS Shadow RAM support, memory remapping, seven channels of Direct Memory Access, 14 levels of interrupts and five programmable timers.

Features and Specifications

- CPU Modules : DBII and DBVII Series

    DBII Series (without external cache)

        DBII-486:
            25/33MHz   -   486SX (PGA, PQFP)
            25/33MHz   -   486DX (PGA)
            50/66MHz   -   486DX2 (PGA)

    DBII Series (with external cache)

        DBII-486C: (Rev. 0/Rev. B)
            25/33MHz   -   486SX (PGA)
            25/33MHz   -   486DX (PGA)
            50/66MHz   -   486DX2 (PGA)

    DBVII Series (with Local bus VGA)

        DBVII-486:
            20/25/33MHz -   486SX (PGA, PQFP)
            25/33MHz   -   486DX (PGA)

50/66MHz   -   486DX2 (PGA)

Note:
Each type of 486 CPU Module, DBII-486SX/DX/DX2, DBII-486CSX/DX/DX2 and DBVII-486SX/DX/DX2, support all speeds of 486 CPU's. Jumpers on the CPU module select between SX, DX, or DX2 CPU's.
PGA stands for Pin Grid Array.
PQFP stands for Plastic Quad Flatpack Package.

- Uses AMI BIOS: 27512-20 (1)
- Uses TI TACT84500 EISA chipset
- 8.25 MHz bus speed for 33/66MHz
  8.33 MHz bus speed for 25/50MHz
- Uses 256Kx36, 512Kx36, 1Mx36, 2Mx36, 4Mx36, 8Mx36, 16Mx36 and 32Mx36 SIM modules (70/80ns)
- Memory configurable up to 128MB
  Memory configurable as 1MB, 2MB, 3MB, 4MB, 6MB, 8MB, 9MB, 10MB, 11MB, 12MB, 14MB, 16MB, 20MB, 24MB, 28MB, 32MB, 36MB, 40MB, 44MB, 48MB 56MB, 64MB, 68MB, 72MB, 80MB, 96MB, 100MB, 104MB, 112MB or 128MB.
- External cache organization: direct map, write through (DBII-486CSX/DX/DX2 CPU modules only)
- Supports Page mode and write buffer
- Supports system BIOS and VGA BIOS Shadow RAM function
- Memory remapping supported
- Supports hidden refresh mode
- Supports 14 edge-triggered or level triggered interrupts
- Eight 32-bit EISA slots, one CPU module slot and one VESA VL-bus slot (slave mode)
- Six layer PCB for the station board
- Baby AT size (station board)
- One year limited warranty

❖ *Installation Overview*

This chapter summarizes the steps in installing your EB3486-TN system board into your system unit. It also includes a description of the area in which you must work. Before installing the system board, determine the size of memory you need onboard. Please refer to the memory chart on page 3-3 and 3-4 for the memory size, type and quantity of SIM modules needed.

Preparing the Area

Before unpacking the system board, make sure the location you have selected provides a relatively dust- and static-free environment. Excessive exposure to dust, static electricity, direct sunlight, excessive humidity, extreme cold or water can damage your system board or greatly reduce its operational abilities.

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. Use a surge protector to shield the system from damage that may result from a power surge on the line.

Air circulating around the system unit cools your system. Please ensure adequate air circulation around the entire unit and do not block the fan vent on the back of the unit.

Once you have selected the ideal location, unpack the EB3486-TN 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 your system board even though there are no signs of physical damage. The damage may show up as a malfunction when you try to operate the machine, or it may result in premature failure. Take due care in handling the system board to make sure 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) To ground yourself, place your hand on any bare metal part of the system chassis.

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

4) Avoid touching the metal pins on modules and connectors. Hold modules and connectors by their edges.

Installing the System Board

Follow the instructions below to install the system board.

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 mounting screws from the   rear and/or sides of the system unit.

Step 3:   Remove the system unit cover by sliding the top of the case forward and then lifting it up.

If you are replacing your current motherboard with the EB3486-TN station board, perform steps 4 and 5. If this is a new system, skip to step 6.

Step 4:   Remove expansion cards seated in any of the expansion slots and detach all connectors from   the old system board.

Step 5:   Loosen the screws holding the original system   board and remove the board from the system.   Save the screws.

Step 6:   Insert the SIM modules into SIMM banks on the EB3486-TN. The quantity and location of the SIM modules is dependent upon the

memory configuration and the type of modules you intend to use.

Step 7: Set the corresponding jumpers.

Step 8: Fasten the screw into the CPU Module and the L-shape bracket. Insert the CPU module into the slot, and then, under the system board,   fasten the screw into the system board and the   L-shape bracket which is attached to the CPU   Module. Please refer to the picture below:
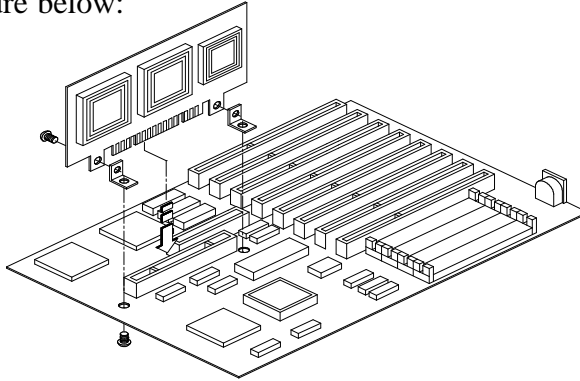
Step 9: Install the prepared EB3486-TN system board into the case and replace the screws.

Step 10: Reattach all cards and connectors and replace the system unit cover. Reconnect all power

cords and cables.

❖ *Hardware Installation*

Computer components are easily damaged by static electricity. Static electrical discharge can damage your system board, even though there are no signs of physical damage. Be careful to handle the system board by its edges. Do not touch any part of the circuitry, especially the gold contacts, with your hands. Do all the preparation work on a static-free surface. Place the system board on a static-free table with the components facing up.

Memory Installation

The EB3486-TN system board can support 1MB to 128MB of memory using HSIMMs. HSIMM is an acronym for High Density Single In-line Memory Module. A HSIMM consists of several RAM chips soldered onto a small circuit board. A HSIMM connects with the system board via a 72-pin card-edge connector.

The HSIMM sockets are divided into four banks which are located on the main board. The SIM modules are plug into the banks at the upper-left side of the station board.

You will need 1 to 4 pieces of HSIM modules, depending on the amount of memory you intend to install. Your system board can be configured to 1MB, 2MB, 3MB, 4MB, 6MB, 8MB, 9MB, 10MB, 11MB, 12MB, 14MB, 16MB, 20MB, 24MB, 28MB, 32MB, 36MB, 40MB, 44MB, 48MB, 56MB, 64MB, 68MB, 72MB, 80MB, 96MB, 100MB, 104MB, 112MB or 128MB of onboard memory.

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

VESA Slot

CPU MODULE

• BANK 0
• BANK 1
• BANK 2
• BANK 3
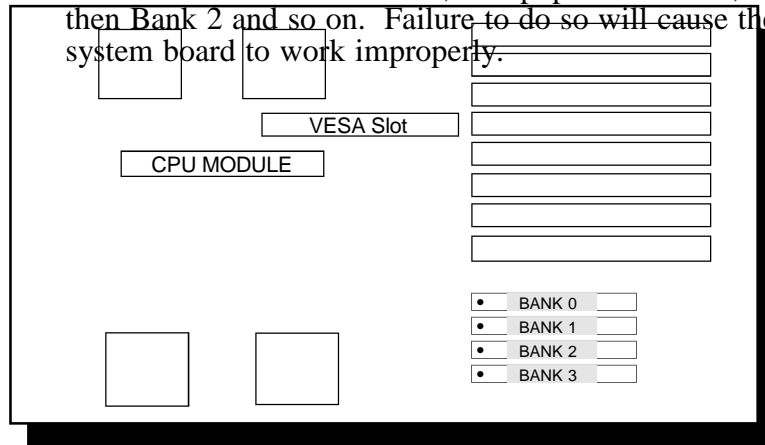
Location of the SIMM Sockets on the Station Board

The following table summarizes the bank locations and modules needed for corresponding memory sizes. Each bank consists of 1 HSIMM socket.

Memory Size	Bank 0	Bank 1	Bank 2	Bank 3
1M	256K x 36	-	-	-
2M	256K x 36	256K x 36	-	-
2M	512K x 36	-	-	-
3M	256K x 36	256K x 36	256K x 36	-
4M	256K x 36	256K x 36	256K x 36	256K x 36
4M	512K x 36	512K x 36	-	-
4M	1M x 36	-	-	-
6M	512K x 36	512K x 36	512K x 36	-
8M	512K x 36	512K x 36	512K x 36	512K x 36

Memory Size	Bank 0	Bank1	Bank 2	Bank 3
8M	1M x 36	1M x 36	-	-
8M	2M x 36	-	-	-
9M	2M x 36	256K x 36	-	-
10M	2M x 36	256K x 36	256K x 36	-
10M	2M x 36	512K x 36	-	-
11M	2M x 36	256K x 36	256K x 36	256K x 36
12M	2M x 36	512K x 36	512K x 36	-
12M	2M x 36	1M x 36	-	-
12M	1M x 36	1M x 36	1M x 36	-
14M	2M x 36	512K x 36	512K x 36	512K x 36
16M	2M x 36	1M x 36	1M x 36	-
16M	2M x 36	2M x 36	-	-
16M	1M x 36	1M x 36	1M x 36	1M x 36
16M	4M x 36	-	-	-
20M	2M x 36	2M x 36	1M x 36	-
20M	4M x 36	1M x 36	-	-
24M	2M x 36	2M x 36	1M x 36	1M x 36
24M	4M x 36	1M x 36	1M x 36	-
24M	4M x 36	2M x 36	-	-
24M	2M x 36	2M x 36	2M x 36	-
28M	4M x 36	1M x 36	1M x 36	1M x 36
32M	2M x 36	2M x 36	2M x 36	2M x 36
32M	4M x 36	4M x 36	-	-
32M	8M x 36	-	-	-
32M	4M x 36	2M x 36	2M x 36	-
36M	4M x 36	4M x 36	1M x 36	-
36M	8M x 36	1M x 36	-	-
40M	4M x 36	2M x 36	2M x 36	2M x 36
40M	4M x 36	4M x 36	1M x 36	1M x 36
40M	4M x 36	4M x 36	2M x 36	-
40M				

Memory Size	Bank 0	Bank1	Bank 2	Bank 3
64M	8M x 36	8M x 36	-	-
64M	8M x 36	4M x 36	4M x 36	-
68M	8M x 36	8M x 36	1M x 36	-
64M	16M x36	-	-	-
72M	8M x 36	8M x 36	1M x 36	1M x 36
72M	8M x 36	8M x 36	2M x 36	-
80M	8M x 36	4M x 36	4M x 36	4M x 36
80M	8M x 36	8M x 36	2M x 36	2M x 36
80M	16M x 36	4M x 36	-	-
96M	8M x 36	8M x 36	8M x 36	-
96M	16M x 36	4M x 36	4M x 36	-
100M	8M x 36	8M x 36	8M x 36	1M x 36
104M	8M x 36	8M x 36	8M x 36	2M x 36
112M	8M x 36	8M x 36	8M x 36	4M x 36
112M	16M x 36	4M x 36	4M x 36	4M x 36
128M	8M x 36	8M x 36	8M x 36	8M x 36
128M	16M x 36	8M x 36	8M x 36	-
128M	16M x 36	16M x 36	-	-
128M	32M x 36	-	-	-

Bank Locations and Modules Needed

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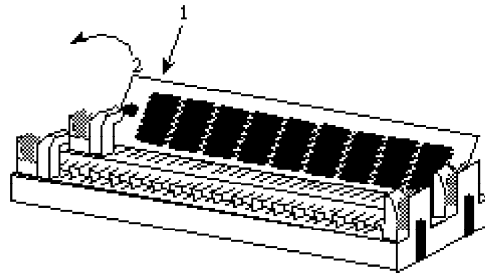
1. Position the HSIM modules above the HSIMM socket with the chips of the module facing the center of the system board.

2. Seat the module into the bank. Make sure it is completely seated in its socket before pressing the module securely into the bank as shown above.

Board Configuration

The EB3486-TN is designed with jumpers and connectors onboard. Make sure that the jumpers are set correctly before installing the system board into your
system unit.

J18
J4
J1
J6
J2
J3
J7
J14
J15
J16
J17
J20
J19
CPU Module
VESA Slot
J13
J8
PL1
J11
J12
J10
PL2
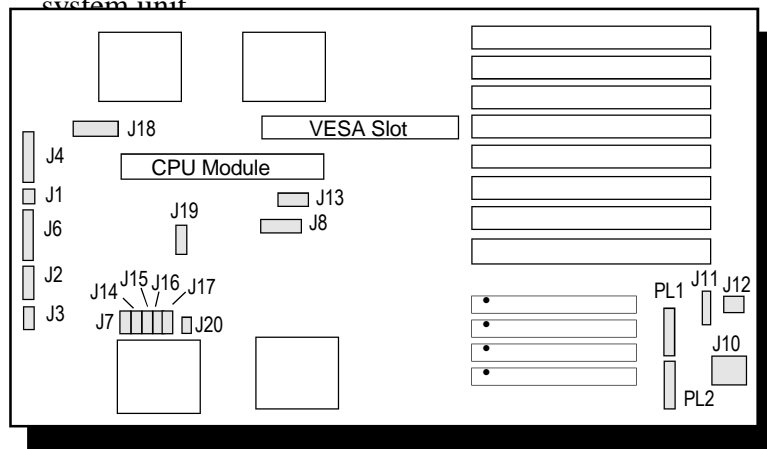
**Location of Jumpers and Connector Pins
on the EB3486-TN**

Jumper Settings

Jumper J8
Primary Display Selector

This jumper must match the type of display adapter installed. If you change your video adapter, change this jumper accordingly.
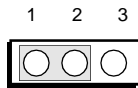
1-2 On: Color Display (Default)   2-3 On: Mono Display
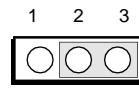
Jumper J7, J14 to J17, J19
CPU Module Select

Set the following jumpers according to the type of CPU module installed on the station board. 486 refers to 486SX/DX/DX2 CPUs.

	J7	J14	J15	J16	J17	J19
486	1-2 On	1-2 On	1-2 On	1-2 On	1-2 On	1-2 On
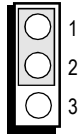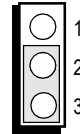
1
2
3

1-2: On

1
2
3

2-3: On

The jumpers below are for factory testing only and should always be set to their default configuration. Recon-figuring these jumpers will cause problems with your EB3486-TN system board.

Jumper J3: 2-3 On
Jumper J13: Off
Jumper J20: On
Jumper J18: 1-2 On

Note:
There are no jumpers on this board to select between internal and external batteries. The Dallas Real-time clock we use has an battery built into the chip, precluding the use of a battery on the system board.

❖ *CPU Modules*

The EB3486-TN station board comes with a CPU module that is inserted in the CPU Module local-bus slot on the station board. The types of CPU modules available are DBII-486SX/DX/DX2 and DBII-486C (SX/DX/DX2). These modules support many of the CPU speeds available in each CPU class. The CPU modules are also equipped with sockets for coprocessors and are easy to install, thus making upgradability easy and

CPU MODULE local-bus slot
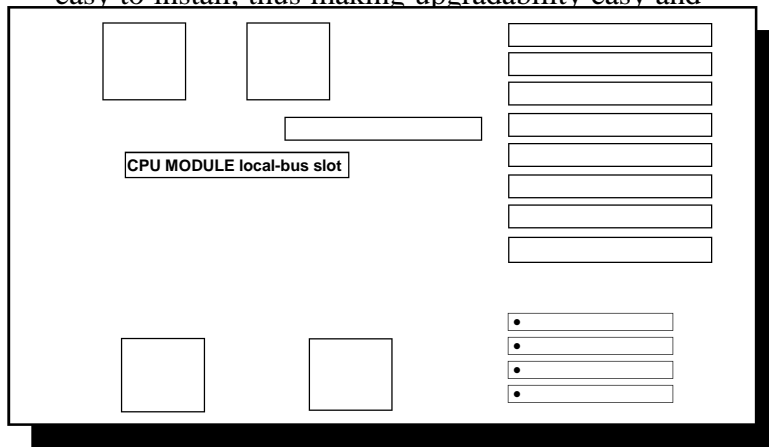
Location of the CPU Module Local-Bus Slot on the EB3486-TN

DBII-486SX/DX/DX2 CPU Modules

The following CPU's are supported by this module: 25/33MHz 486SX, 25/33MHz 486DX and 50/66MHz 486DX2. An 80487SX and Weitek 4167 are also supported. If you have a 486SX CPU installed, an overdrive processor could also be installed at a later date.
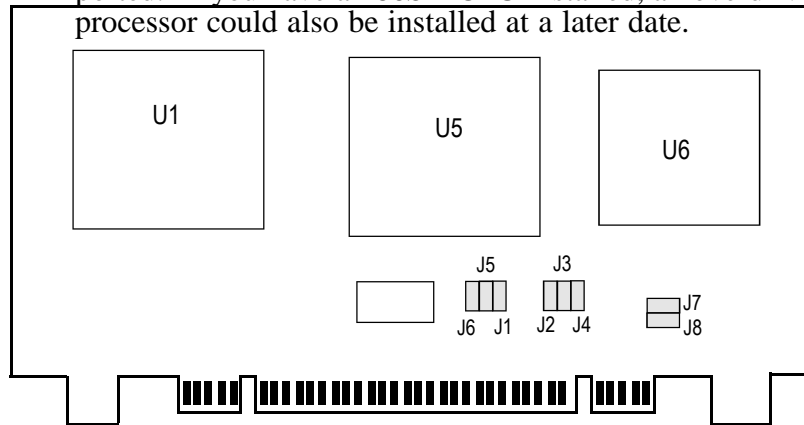
DBII-486SX/DX/DX2 CPU Module

The DBII-486SX/DX/DX2 CPU Module has three sockets: U1 (socket for 487SX/Over Drive Processor), U5 (socket for 486SX/DX/DX2), U6 (socket for WTL4167).

Jumper Settings

Jumpers JP2/JP3/JP4
CPU Select

Jumpers JP2/JP3/JP4 set the CPU modules to 486SX, 486DX or 486DX2, depending on which type of CPU is installed. The default setting is 486DX.

	486SX	486DX*	486DX2
JP2	2-3: On	1-2: On	1-2: On
JP3	2-3: On	1-2: On	1-2: On
JP4	2-3: On	1-2: On	1-2: On
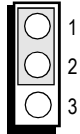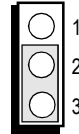
1-2: On   2-3: On

Jumpers JP7/JP8
CPU Clock Select

Set these jumpers according to the speed of CPU installed on the CPU module. The default setting is 33MHz.
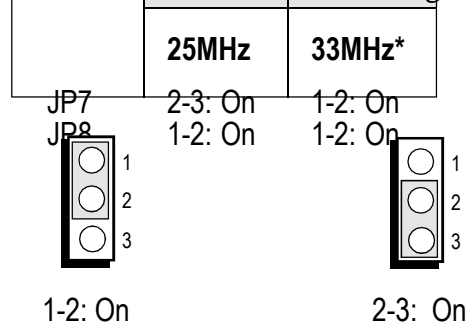
	25MHz	33MHz*
JP7	2-3: On	1-2: On
JP8	1-2: On	1-2: On

1-2: On   2-3: On

The jumpers below are for factory testing only and should always be set to their default configuration.

Jumpers JP1/JP5/JP6: 2-3 On

* Default setting

DBII-486C Rev. 0 CPU Modules

The DBII-486C Rev. 0 CPU Module supports the same CPU speeds as the DBII-486SX/DX/DX2 CPU modules. This CPU Module also supports up to 256K of external cache.
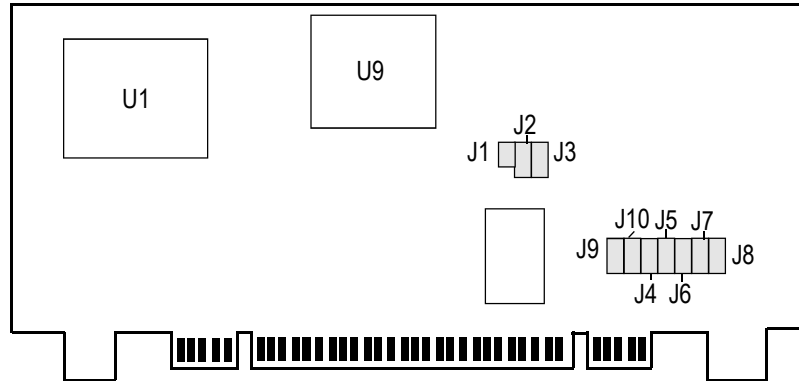
DBII - 486C Rev. 0 CPU Module

The DBII-486C Rev. 0 CPU Module has two sockets:
U1 (socket for 486DX, 486DX2, 486SX and 487SX/
OverDrive Processor), U9 (socket for Weitek
Coprocessor).

Jumper Settings

Jumpers JP1 to JP3
CPU Select

Jumpers JP1/JP2/JP3 set the CPU module to 486SX,
487SX, or 486DX/DX2, depending on which type of
CPU is installed. The default setting is 486DX.

	JP1	JP2	JP3
486DX/DX2*	1-2: On	1-2: On	2-3: On
486SX	Off	Off	1-2: On
OverDrive Processor	1-2: On	2-3: On	2-3: On

JP1 JP2 JP3

1
2
3

On

1-2: On

JP1 JP2 JP3

1
2
3

Off

2-3: On
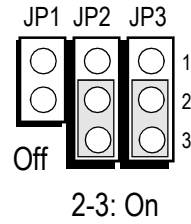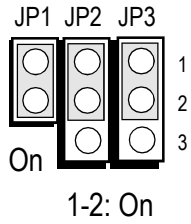
Default setting

Cache Configuration

You can configure DBII-486C Rev. 0 to three different cache sizes: 64K, 128K, and 256K. 256K is the default size. Use either 8K x 8 (25ns) or 32K x 8 (25ns) SRAMs to upgrade your cache size. The figure below shows the location of the SRAM sockets.

U1

U9

U13
U14
U15
U16
U17
U18
U19
U20
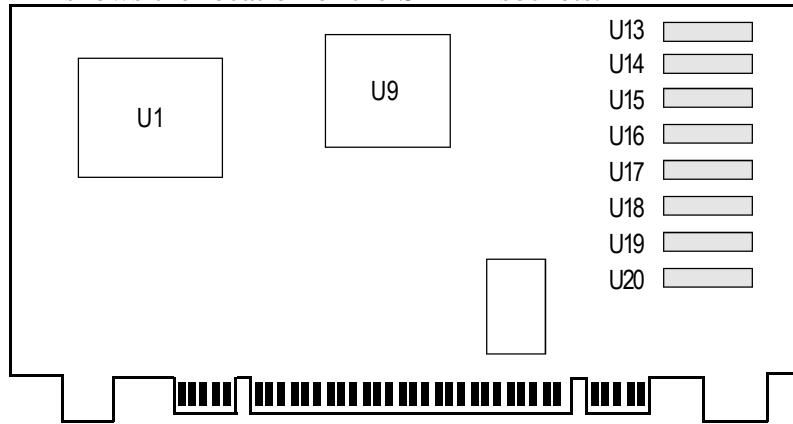
Cache Size	U13 - U16	U17 - U20
64K	8K x 8 (25ns)	8K x 8 (25ns)
128K	32K x 8 (25ns)	none
256K*	32K x 8 (25ns)	32K x 8 (25ns)

Jumper Settings for Cache Memory

Jumpers JP4 to JP8

Cache Size Setting

	JP4	JP5	JP6	JP7	JP8
64K	2-3: On	2-3: On	2-3: On	1-2: On	1-2: On
128K	1-2: On	1-2: On	2-3: On	2-3: On	N/A
256K*	1-2: On	1-2: On	1-2: On	2-3: On	2-3: On

The jumpers below are for factory testing only and should always be set to their default configuration. Reconfiguring these jumpers will cause problems with your EB3486-TN system board.

Jumpers JP9 and JP10: 1-2 On

* Default setting

DBII-486C Rev. B CPU Modules

The DBII-486C Rev. B CPU Module supports the same CPU speeds as the DBII-486C Rev. 0 CPU modules.

ZIF
Socket

U1

J9 J10

J2
J1 J3

J5 J7
J4 J8
J6
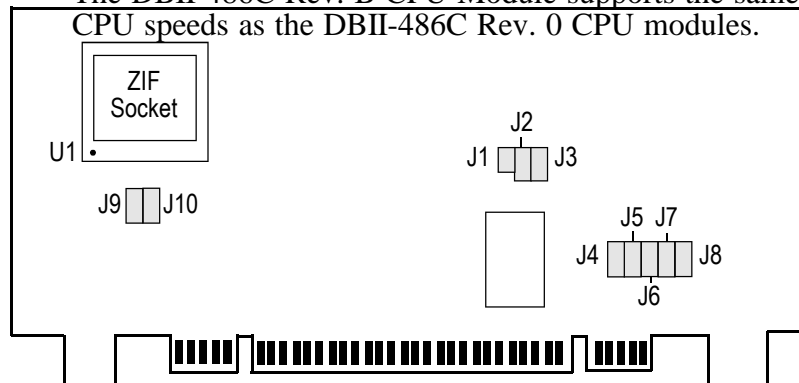
DBII - 486C Rev. B CPU Module

The DBII-486C Rev. B CPU Module has a 237 pin ZIF socket: U1 (socket for 486SX, 486DX, 486DX2 and 487SX/Intel 486™ OverDrive Processor/Pentium™ OverDrive Processor).

Note:
DBII-486C Rev. B CPU Module does not support Weitek coprocessor (4167).

Jumper Settings

Jumpers JP1 to JP3
CPU Select

> *(Refer to DBII-486C Rev. 0 CPU module jumper settings on page 4-5).*

Jumper Block JP9 and JP10
CPU Voltage

> The DBII-486C Rev. B supports 5 Volt CPUs. Optional 3.3 Volt CPUs are supported only if a regulator chip is soldered on location U22. Set Jumper block JP9 and JP10 according to the voltage of the CPU installed.
>
> **Warning:**
> *If you are using a 3.3 Volt CPU, this jumper block must be set to 3.3 Volt. Otherwise, the CPU will be permanently damaged.*

CPU Voltage	JP9/JP10
5V CPU* 3.3V CPU	1-2: On 2-3: On

* *Default setting*

JP9 JP10

◯ ◯ 1
◯ ◯ 2
◯ ◯ 3

JP9 JP10

◯ ◯ 1
◯ ◯ 2
◯ ◯ 3

1-2 On: 5 Volt CPU
(Default)

2-3 On: 3.3 Volt CPU
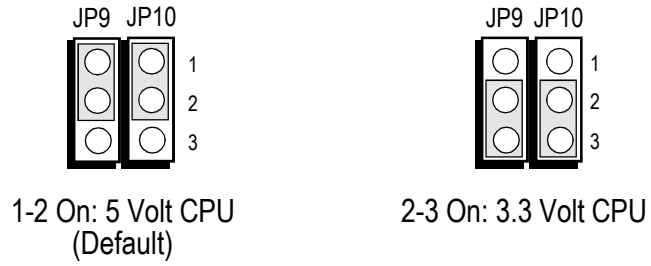
Cache Configuration

You can configure DBII-486C Rev. B to two different cache sizes: 128K, and 256K. 256K is the default size. Use 4 pieces 32K x 8 (25ns) SRAMs to upgrade your cache. The figure below shows the location of the SRAM sockets.

```
                                        U13 [====]
                                        U14 [====]
                                        U15 [====]
        ┌─────────┐                     U16 [===]
        │  ZIF    │                     U17 [=====]
        │ Socket  │                     U18 [=====]
        └─────────┘                     U19 [====]
  U1·                                    U20 [===]
```
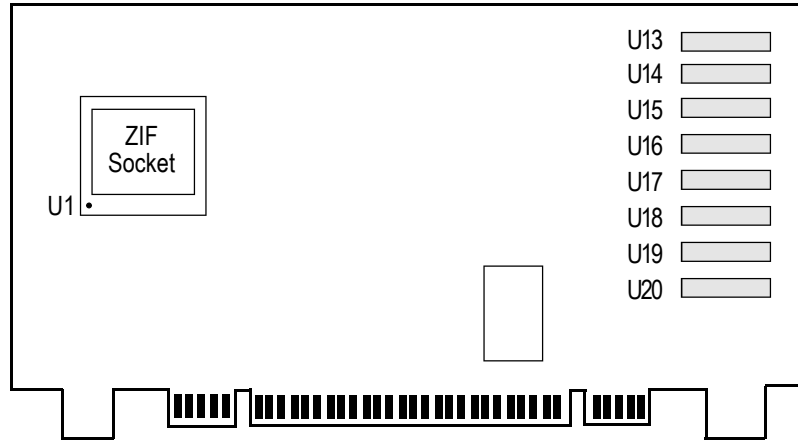
Cache Size	U13 - U16	U17 - U20
128K	32K x 8 (25ns)	none
256K*	32K x 8 (25ns)	32K x 8 (25ns)

Jumper Settings for Cache Memory

Jumpers JP4 to JP8
Cache Size Setting

	JP4	JP5	JP6	JP7	JP8
128K	1-2: On	1-2: On	2-3: On	2-3: On	N/A
256K*	1-2: On	1-2: On	1-2: On	2-3: On	2-3: On

* Default setting

❖ *Initial Setup Program*

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

After the memory test, the message below will appear on the screen if your CMOS setup is correct:

Enter CURRENT Password:

The default password is AMI. You have three chances to type the correct password. If the password is still incorrect after the third try, the system will lock up. You must turn your system off and back on again to restart it. You can change the password under the change password option. Refer to the "Change Password" section for more information. A screen similar to the one below will now appear. If the password option is disabled, you directly access this screen.
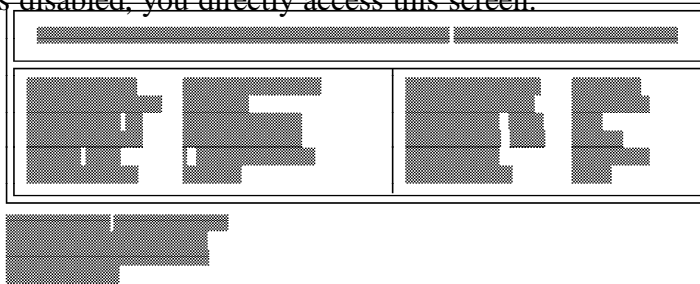
Note:
The type of processor indicated in the Main Processor information line is dependent on the type of CPU module installed.

AMI BIOS Setup Utilities

If you want to change your CMOS setup, or your CMOS setup is incorrect, press <Del> when the message, "Hit <Del> if you want to run setup," appears on the screen. Again, if you enabled the password option, you will be prompted to the message below:

Enter CURRENT Password:

The default password is AMI. For information on how to change the password, refer to the "Change Password" section. After entering the correct password, the screen below appears. If the password option is disabled, you will directly access this screen.
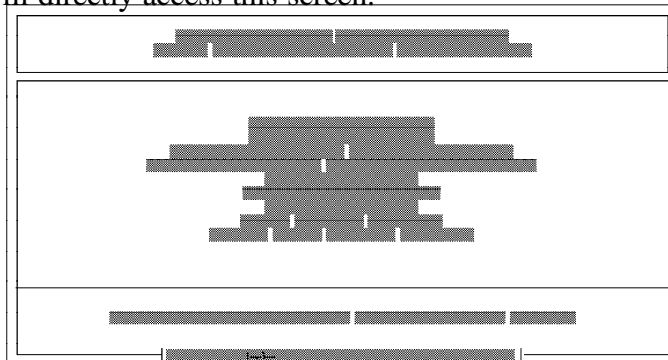
Use the arrow keys to highlight the option you want and hit <Enter>.

Standard CMOS Setup

Before accessing this option, the warning message below
will appear on the screen:
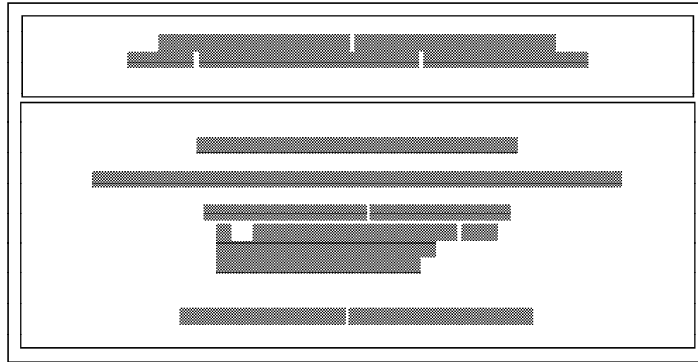
This message warns you that if inappropriate modi-
fications are made to the CMOS Setup, problems will
occur. Press <Enter> to continue or press <Esc> to
abort.

Note:
*If your system fails after the setup procedure, power off
your system and turn it on again. Wait for the
message, "Hit <Del> if you want to run setup," to
appear and press <Del>.*

If you press <Enter>, a screen similar to the one on the
next page will appear:

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

The left side of the screen lists the modifiable parameters. You can change the date, time, hard disk drive (C and D) type, type of floppy drive (A and B), primary display, and keyboard options.

On the lower right hand side is a calendar that shows your current date setting.

The box at the lower left provides information each highlighted parameter.

Navigation and menu selection instructions are located below the information box. Use the up or down arrow key to move between options. Once you have highlighted the option you wish to change, use the <Page Up> or <Page Down> key to view the available selections for that option.

If you have added a hard drive, you must select the appropriate drive type for the drive. The EB3486-TN has 46 pre-set types and one user-definable type.

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

If none of the pre-set types is appropriate for your hard drive, choose type 47, 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 <Page Up> key until type 47 is showing. Fill in all the parameters as specified by the drive manufacturer. To move between parameters, hit the <Enter> key.

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

Advanced CMOS Setup

Before accessing this option, the warning message found on the next page appears on the screen:
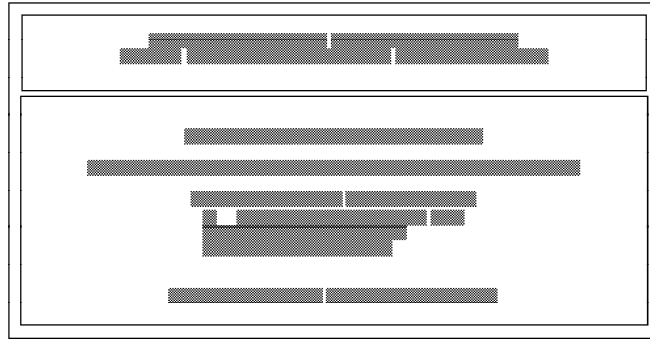
This message warns you that if inappropriate modi-
fications are made to the Advanced CMOS Setup,
problems will occur. Press <Enter> to continue or press
<Esc> to abort.

Note:
*If your system fails after the setup procedure, power off
your system and turn it on again. Wait for the
message, "Hit <Del> if you want to run setup", to
appear and press <Del>.*

If you press <Enter>, a screen similar to the one on the
next page will appear:
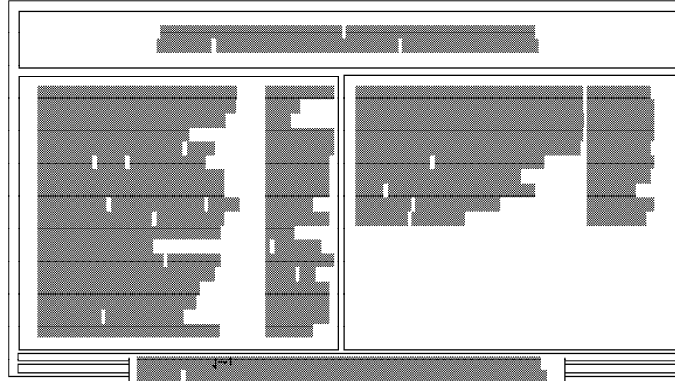
Note:
The VL-Bus Adapter must be set to "Present" if there is any local bus device installed.
The Memory Write buffer must be set to disable if any problem occurs on the VL-Bus Adapter. If memory write *buffer is enabled, some VL-Bus adapters can* gain much *performance benefit from it.*

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

Set the password checking option to "Always" or "Setup" if you want to enable this option. Setting it to "Always" will prompt you for a password everytime you cold boot your computer or access setup. When you set the option to "Setup", you will be prompted for a password only when trying to access setup.

The Boot Sector Virus Protection 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.

Note:
Your system must have an American Megatrend Keyboard Controller BIOS, version F or later, for this option to work.

If the changes 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.

Auto Configuration with BIOS Defaults

If, for some reason, the CMOS becomes corrupted, the system can be configured with the default values should provide optimum performance for the system. You should use these values unless you are having possible hardware problems.
Highlight this option on the main menu and press <Enter>. The message below will appear.

Load BIOS Setup Default Values from ROM Table (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.

Auto Configuration with Power-on Defaults

The Power-on 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 having possible hardware problems.

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

Load Power-on Default Values from ROM Table (Y/N)? N

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

Change Password

The default password is AMI. If you want to change the password, make sure that you set the Password Checking Option to "Always" or "Setup" under CMOS Advanced Setup. If the Password Checking Option is not enable, the error message below will appear on the screen:

**<Password Option> must be enabled in Advanced CMOS Setup
Press any key to continue**

Use the arrow keys to highlight the Change Password Option and press <Enter>. The message below will now appear:

Enter Current Password:

The preset password is AMI. Type AMI, unless the password has been previously changed, and press <Enter>. The message below will now appear:

Enter NEW Password:

Type in the the new password. You are limited to six ASCII characters. If you type more than six characters, you will get the following error message:

Error, press any key

Pressing any key on the keyboard to return to the message below:

Enter NEW Password:

Type in a password that is six characters long or shorter. When done, you will be prompted to the message below:

Re-enter NEW Password:

You are asked to verify the new password. Type in exactly the same password. Failure to do so will yield the error message shown below:

Error, press any key

If you receive this error, you will have to start over.

After typing in the new password, the message below will appear:

New password installed

Press the <Esc> key to return to the main menu. Use the arrow keys to go to the "Write to CMOS and exit" option to save the new password and reboot your system.

Auto Detect Hard Disk

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 following one will appear.
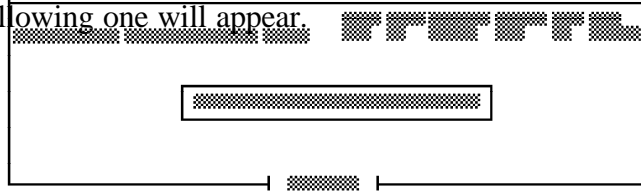
The screen displays the parameters detected and allows you to accept or reject the parameters. Type "Y" and press <Enter> to accept the parameters or press <Esc> to abort. If you select "Y", the parameters for hard disk Type 47 will be displayed in Standard CMOS Setup. If you select "N", the parameters in the Standard CMOS Setup will remain the same.

Hard Disk Utility

This option will format, set the interleave mode, and do a media analysis of your hard disk drives. Highlight this option and press <Enter>. A screen similar to the following one will appear.

Note:

Do not use this utility with an IDE hard drive. Use of this utility can severely damage your hard drive.
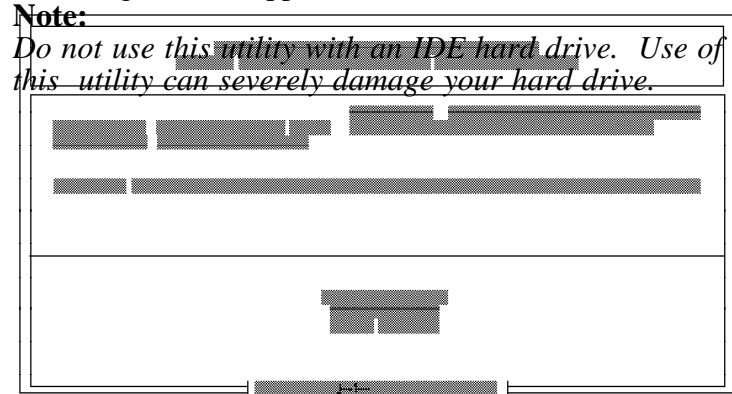
Use the arrow keys to select the desired options and press <Esc> to exit when done.

Write to CMOS and Exit

When all the changes have been made, highlight this option and press <Enter>. The message below will appear:

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

Type "Y" and press <Enter>. The modifications you've 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 <Del> after memory testing is done.

Do Not Write to CMOS and Exit

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

Want to quit without saving(Y/N)? <u>N</u>

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 <Del> after memory testing is done.

❖ *EISA Configuration Utility*

Overview

The EB3486-TN 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 EB3486-TN system board uses the "DFI0300.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 EB3486-TN system board, choose the "DFI0300.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.

EISA CONFIGURATION UTILITY, Release 2.01 - (C)1992 American Megatrends Inc.

```
┌─────────────────────────────────────────────────┐
│  ┌───────────────────────────────────────────┐  │
│  │   ┌─────────────────────────────────────┐ │  │
│  │   │  Step 1: About EISA Configuration   │ │  │
│  │   └─────────────────────────────────────┘ │  │
│  │   ┌─────────────────────────────────────┐ │  │
│  │   │  Step 2: Add and Remove Boards      │ │  │
│  │   └─────────────────────────────────────┘ │  │
│  │   ┌─────────────────────────────────────┐ │  │
│  │   │  Step 3: Change Configuration Settings│ │  │
│  │   └─────────────────────────────────────┘ │  │
│  │   ┌─────────────────────────────────────┐ │  │
│  │   │  Step 4: Save Configuration         │ │  │
│  │   └─────────────────────────────────────┘ │  │
│  │   ┌─────────────────────────────────────┐ │  │
│  │   │  Step 5: View Switch/Jumper Settings │ │  │
│  │   └─────────────────────────────────────┘ │  │
│  │   ┌─────────────────────────────────────┐ │  │
│  │   │  Step 6: Exit                       │ │  │
│  │   └─────────────────────────────────────┘ │  │
│  └───────────────────────────────────────────┘  │
│ [Select=Enter]   [Exit=Esc]   [Help=F1]   [Utilities=F9] │
└─────────────────────────────────────────────────┘
```
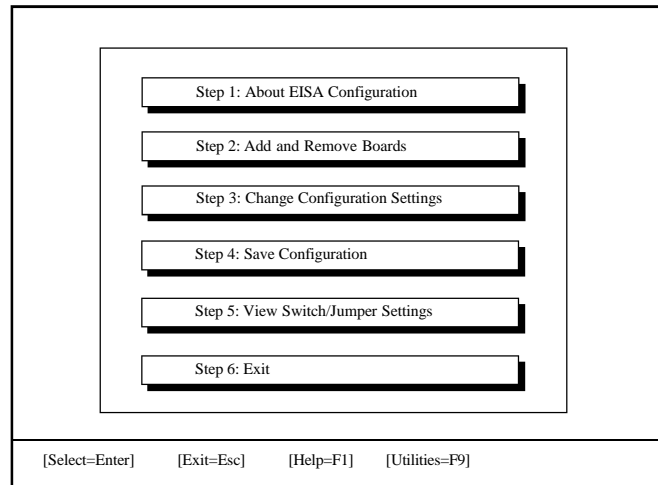
Step 1: About EISA Configuration

This step display 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.

```
─── Step 2  -  Add and Remove Boards ───

    System  -  DFI EB3486-TN EISA SYSTEM BOARD
    Slot   1 -  Empty
    Slot   2 -  Empty
    Slot   3 -  Empty
    Slot   4 -  Empty
    Slot   5 -  Empty
    Slot   6 -  Empty
    Slot   7 -  Empty
    Slot   8 -  Empty


    -   Press INSERT to add a board that was not deleted or has not been installed yet.
    -   Press DEL to remove the selected board.
    -   Press F7 to move the selected board to a different slot.
    -   Press Esc when finished with this step.


  [Add=INSERT]    [Remove=DEL]    [Move=F7]    [Done=ESC]  [HELP=F1]
```

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.

```
─── Select the Board to Add ───

  Directory: A:\*.CFG

      !DFI0300.CFG -  DFI EB3486-TN EISA SYSTEM BOARD
      !DFI1001.CFG -  DFI EISANet - 500 EtherNet Adapter
      !DFI0001.CFG -  EISA SYSTEM BOARD
      !DFI0200.CFG -  EISA SYSTEM BOARD




  [Select=ENTER]      [Cancel=ESC]      [Add ISA=INSERT]
```
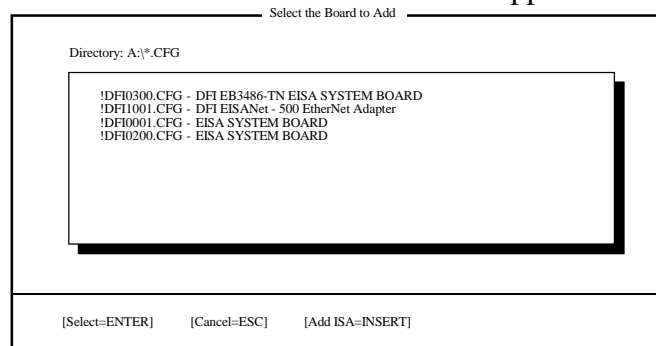
b. Select the board you want to add and press <Enter>.

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 on page 6-21 of this manual for further information.

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

```
                                    Step 2 - Add and Remove Boards
 ┌──────────────────────────────────────────────────────────────────────┐
 │                   ┌─────────────── ISA Board Database ──────────────┐  │
 │                   │  Select the ISA board to load or press <Esc> to exit.│
 │        System     │  ┌──────────────────────────────────────────┐  │  │
 │        Slot   1   │  │ a                                        │  │  │
 │        Slot   2   │  │                                          │  │  │
 │        Slot   3   │  │ [ ] WG-1200VL                            │  │  │
 │        Slot   4   │  │                                          │  │  │
 │        Slot   5   │  │                                          │  │  │
 │        Slot   6   │  │                                          │  │  │
 │        Slot   7   │  │                                          │  │  │
 │        Slot   8   │  │                                          │  │  │
 │                   │  │                                          │  │  │
 │                   │  └──────────────────────────────────────────┘  │  │
 │     - Press INS   │                                                 │  │
 │     - Press DE    │                                                 │  │
 │     - Press F7    │                                                 │  │
 │     - Press Esc   │   [Ok=ENTER]          [Cancel=ESC]              │  │
 │                   └─────────────────────────────────────────────────┘  │
 │    [Add=INSERT]   [Remove=DEL]   [Move=F7]   [Done=ESC]   [HELP=F1]     │
 └──────────────────────────────────────────────────────────────────────┘
```

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.

```
┌──────────────── Step 2  -  Add and Remove Boards ────────────────┐
│  ┌─────────────────────────────────────────────┐                 │
│  │  Adding a board                              █                 │
│  │  Performing syntax check on "AMIFFF1.CFG     █                 │
│  Syst├──────────────── Slot Selection ──────────────┐            │
│  Slot│                                               █            │
│  Slot│  Select a slot for:                           █            │
│  Slot  3 -  Empty│  WG-1200VL                        █            │
│  Slot  4 -  Empty│  Board slot type is ISA16.        █            │
│  Slot  5 -  Empty│                                   █            │
│  Slot  6 -  Empty│  Slot    Type       Bus Master    █            │
│  Slot  7 -  Empty│ ┌──────────────────────────────┐  █            │
│  Slot  8 -  Empty│ │  1     EISA Yes             ▲│  █            │
│                  │ │  2     EISA Yes             ▒│  █            │
│                  │ │  3     EISA Yes             ▒│  █            │
│                  │ │  3     EISA Yes             ▒│  █            │
│  -  Press INSERT to add a board that w│  5     EISA Yes      ▼│  █│
│  -  Press DEL to remove the selected b└──────────────────────────┘│
│  -  Press F7 to move the selected board│  Slots are listed in recommended order. │
│  -  Press Esc when finished with this st├─────────────────────────┤
│                                         │  [Select=ENTER]         │
│                                         └─────────────────────────┘
│      [Add=INSERT]   [Remove=DEL]   [Move=F7]   [Done=ESC]  [HELP=F1]
└──────────────────────────────────────────────────────────────────┘
```

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.

```
┌──── Step 2  -  Add and Remove Boards ─────────────────────┐
│                                                           │
│   ┌──────────────── Confirm ────────────┐                 │
│  S│                                      │                 │
│  S│  Do you really want to remove:       │                 │
│  S│  WG-1200VL                           │                 │
│  S│                                      │                 │
│  S├──────────────────────────────────── │                 │
│  S│  [Ok=ENTER]    [Cancel=ESC]          │                 │
│  S│                                      │                 │
│  Slot   6  -  Empty                      │                 │
│  Slot   7  -  Empty                                        │
│  Slot   8  -  Empty                                        │
│                                                           │
│   ┌─────────────────────────────────────────────────────┐│
│   -   Press INSERT to add a board that was not deleted or has not been installed yet.│
│   -   Press DEL to remove the selected board.             │
│   -   Press F7 to move the selected board to a different slot.│
│   -   Press Esc when finished with this step.             │
│                                                           │
├───────────────────────────────────────────────────────────┤
│     [Add=INSERT]    [Remove=DEL]    [Move=F7]    [Done=ESC]   [HELP=F1] │
└───────────────────────────────────────────────────────────┘
```
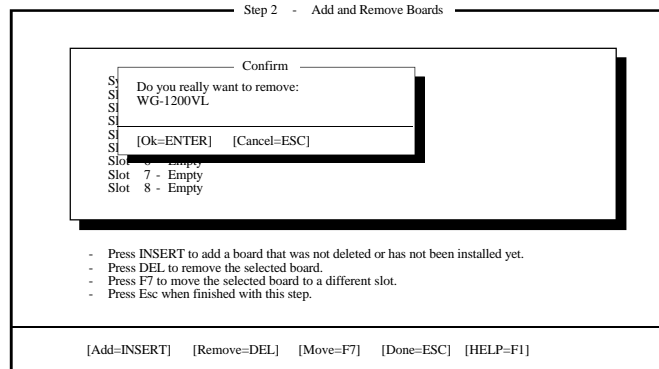
b. Press <Enter> to confirm removal or <Esc> to cancel.

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.

```
┌──────────────── Step 2   -   Add and Remove Boards ─────────────────┐
│ ┌─────────────────────────────────────────────────────────────┐     █ │
│ │ System  -  DFI EB3486-TN EISA SYSTEM BOARD    ┌──── Slot Selection ────┐
│ │ Slot   1 -  Empty                             │                        │
│ │ Slot   2 -  Empty                             │ Select a slot for:     │
│ │ Slot   3 -  WG-1200VL                         │ WG-1200VL              │
│ │ Slot   4 -  Empty                             │ Board slot type is ISA16.│
│ │ Slot   5 -  Empty                             │                        │
│ │ Slot   6 -  Empty                             │ Slot    Type    Bus Master│
│ │ Slot   7 -  Empty                             │                        │
│ │ Slot   8 -  Empty                             │   1     EISA Yes      ┌┐│
│ └─────────────────────────────────────────████─│   2     EISA Yes      ││││
│                                                 │   4     EISA Yes      ││││
│   -  Press INSERT to add a board that wa        │   5     EISA Yes      ││││
│   -  Press DEL to remove the selected boa       │   6     EISA Yes      └┘│
│   -  Press F7 to move the selected board        │                        │
│   -  Press Esc when finished with this step     │ Slots are listed in recommended order.│
│                                                 └────────────────────────┘
│        [Add=INSERT]    [Remove=DEL]   [      [Select=ENTER]              │
└─────────────────────────────────────────────────────────────────────────┘
```

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.

```
┌─── Step 3  -  Change Configuration Settings ───┐

    ┌────────────────────────────────────────────┐
    │ System  -  DFI EB3486-TN EISA SYSTEM BOARD  │
    │ Slot   1  -  DFI EISANet-500 EtherNet Adapter │
    │ Slot   2  -  Empty                           │
    │ Slot   3  -  Empty                           │
    │ Slot   4  -  Empty                           │
    │ Slot   5  -  Empty                           │
    │ Slot   6  -  Empty                           │
    │ Slot   7  -  Empty                           │
    │ Slot   8  -  Empty                           │
    └────────────────────────────────────────────┘

        -  This step is optional, you may skip it by pressing ESC and all configuration
           settings will remain unchanged.
        -  Press ENTER to view or change a board's configuration settings.
        -  Press ESC when you are satisfied with the current settings.


  [Select=ENTER]      [Done=ESC]      [Advanced Options=F9]      [HELP=F1]
```

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.

```
┌─────Edit Settings for: DFI EB3486-TN EISA SYSTEM BOARD─────┐
│            ─────System Board Memory Functions─────            │
│  System Board Memory                                         │
│                                                              │
│    Use SIMM Memory Module for the 486 System Board.          │
│                                                              │
│              ┌──────────────────┐                            │
│              │ (  )  1MB      ┌─┐│  +                        │
│              │ (  )  2MB      │ ││                           │
│              │ (  )  3MB      │ ││                           │
│              │ ( • )  4MB     │ ││                           │
│              │ (  )  6MB      │ ││                           │
│              │ (  )  8MB      │ ││                           │
│              │ (  )  9MB      │ ││                           │
│              │ (  )  10MB     │ ││                           │
│              │ (  )  11MB     │ ││                           │
│              │ (  )  12MB     │ ││                           │
│              │ (  )  14MB     │ ││                           │
│              │ (  )  16MB     │ ││                           │
│              │ (  )  20MB     │ ││                           │
│              │ (  )  24MB     └─┘│  ♦                        │
│              └──────────────────┘                            │
│                                                              │
│  [Select=ENTER]              [Cancel=ESC]                    │
└──────────────────────────────────────────────────────────────┘
```
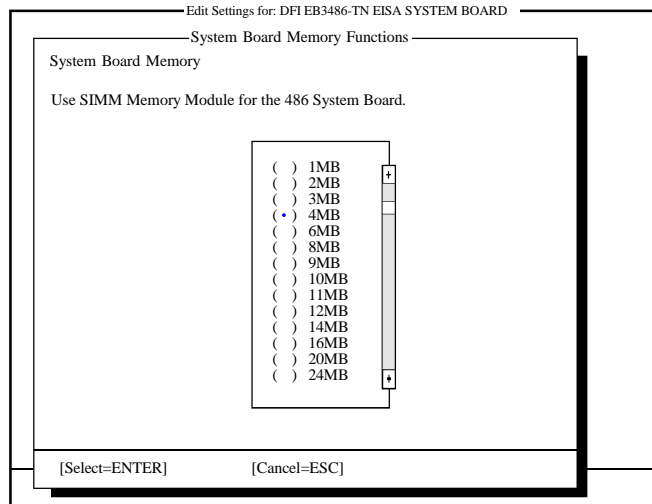
. Select the memory that was installed in your
system board and press <Enter>.

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

```
┌─────────── Edit Settings for: DFI EISANet-500 Ethernet Adapter ───────────┐
│                                                                            │
│  ┌──────────────────────────────────────────────────────────────────┐    │
│  │ DFI  EISANet-500 I/O Addresses                                     │    │
│  │ Slot-Specific Only (Default)                                       │    │
│  ├──────────────────────────────────────────────────────────────────┤    │
│  │ DFI EISANet-500 EPROM                                              │    │
│  │ EPROM Disabled (Default)                                           │    │
│  ├──────────────────────────────────────────────────────────────────┤    │
│  │ Bus Master                                                         │    │
│  │ Bus Release After Preempt                                          │    │
│  │ 23 BCLK Cycles                                                     │    │
│  ├──────────────────────────────────────────────────────────────────┤    │
│  │ DFI EISANet-500 Interrupt                                          │    │
│  │ Interrupt Edge/Level                                               │    │
│  │ Edge Triggered Interrupt                                           │    │
│  ├──────────────────────────────────────────────────────────────────┤    │
│  │ Ethernet                                                           │    │
│  │ Packet Reception                                                   │    │
│  │ Receive Own Packets                                                │    │
│  │ Connector Selection                                                │    │
│  │ Thin Ethernet (BNC1) [ETHERNet-500ECT]                            │    │
│  └──────────────────────────────────────────────────────────────────┘    │
│                                                                            │
├────────────────────────────────────────────────────────────────────────┤
│ [Done=ESC]   [Change=ENTER]   [Resources=F6]   [PgUp] [PgDn]   [Help=F1] │
└────────────────────────────────────────────────────────────────────────┘
```

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.

```
┌──────── Edit Settings for: DFI EISANet-500 Ethernet Adapter ─────────┐
│ ┌────────────────────────────────────────────────────────┐          │
│ │ This board supports both slot-specific and ISA compatible I/O        │
│ │ addressing.  The ISA mode should only be used for software           │
│ │ compatibility with ISA drivers.                                      │
│ │                  ┌──────────────────────────────┐        │
│ │                  │ ( • ) Slot-Specific only (Default) │    │
│ │                  │ (   ) Slot-Specific and ISA      │    │
│ │                  └──────────────────────────────┘        │
│ │ [Select=Enter]    [Cancel=ESC]                           │
│ │ Interrupt Edge/Level                                     │
│ │ Edge Triggered Interrupt                                 │
│ │                                                          │
│ │ Ethernet                                                 │
│ │ Packet Reception                                         │
│ │ Receive Own Packets                                      │
│ │ Connector Selection                                      │
│ │ Thin Ethernet (BNC1) [ETHERNet-500ECT]                   │
│ └────────────────────────────────────────────────────────┘          │
│                                                                      │
│ [Done=ESC]   [Change=ENTER]   [Resources=F6]   [PgUp]  [PgDn]  [Help=F1] │
└──────────────────────────────────────────────────────────────────────┘
```

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

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 Advance ~~Step 3~~ - Change Configuration Settings . similar to the one appear.

Advanced Options

Global Resource Map
Board Details
System Details
Physical Board ID Map

[Select=ENTER] [Done=ESC]

TEM BOARD
Adapter

Slot   6 - Empty
Slot   7 - Empty
Slot   8 - Empty

- This step is optional, you may skip it by pressing ESC and all configuration
  settings will remain unchanged.
- Press ENTER to view or change a board's configuration settings.
- Press ESC when you are satisfied with the current settings.

[Select=ENTER]   [Done=ESC]   [Advanced Options=F9]   [HELP=F1]

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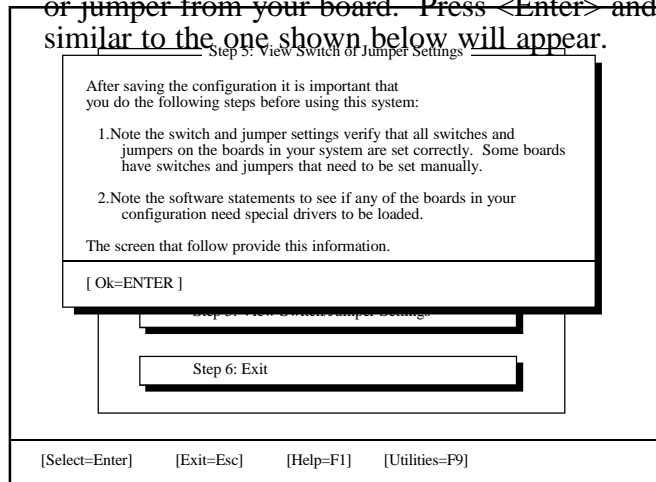
b. Press <Enter> to display the information. If your
   board has no switches or jumpers, a box will appear
   informing you that the board has no switches or
   jumpers.

```
┌─────────────── Switch/Jumper View ───────────────┐
│ Page 1 of 6: Switches and Jumpers for Slot 0      │
│                                                    │
│ Slot 0 - DFI EB3486-TN EISA SYSTEM BOARD          │
│ This board has no  ┌──── Confirm Print ────┐      │
│                    │                        │      │
│                    │ Print to:  (•) Printer │      │
│                    │            ( ) File    │      │
│                    │ Filename: Config. PRN  │      │
│                    │                        │      │
│                    │  Ok=ENTER    Cancel=ESC│      │
│                    └────────────────────────┘      │
│                                                    │
│                                                    │
│  [Done=ESC]   [Print=F7]   [PgUp]   [PgDn]  [Help=F1] │
└────────────────────────────────────────────────────┘
```

    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:

EISA CONFIGURATION UTILITY, Release 2.01 - (C)1992 American Megatrends Inc.

From the main menu, pr Utilities F9> and a Utilities box
simil

Press <Space> to change settings.

[ ] Remote Mode (make a configuration for another system)
[ ] Advanced/Dealer Mode (show functions marked as EXP)
[ ] Force new configuration (ignore previous settings)
[ ] Load CFG files manually from directory list
[ ] Load CFG files listed in CFGLIST.DAT
[ ] Ignore ID mismatches between installed boards and CMOS

[F5] = Restore configuration from backup (CMS file)
[F6] = Display Physical Board ID Map
[F7] = Define ISA Board

[OK=ENTER]   [Cancel=ESC]

Step 6: Exit

[Select=Enter]   [Exit=Esc]   [Help=F1]   [Utilities=F9]

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.

```
┌──────────────── ISA Board Definition ────────────────┐
│ Board Name: WG-1200VL                                 │
│ Manufacturer: DFI                                     │
│ Board Type:                    Slot Type: ( · ) 16 bit│
│   ┌─────────────────────┐┌┐            ( ) 8 bit     │
│   │ ( · ) Video Board   ││ │           ( ) 8 or 16 bit│
│   │ ( ) Multifunction Board│            │
│   │ ( ) Mass Storage Device │┊│         │
│   └─────────────────────┘└┘             │
│                                                       │
│    DMA       IRQ      Ports     Memory                │
│   ┌──┐     ┌──┐     ┌──┐     ┌──┐                      │
│   │- │     │- │     │- │     │- │                      │
│   │- │     │- │     │- │     │- │                      │
│   │- │     │- │     │- │     │- │                      │
│   │- │     │- │     │- │     │- │                      │
│   └──┘     │- │     │- │     │- │                      │
│            │- │     │- │     │- │                      │
│            └──┘     │- │     │- │                      │
│                     └──┘     └──┘                      │
│                                                       │
│ [Save=F10]   [Load=F9]   [New=F2]   [Delete=F4]   [Quit=ESC] │
└───────────────────────────────────────────────────────┘
```

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.

```
┌─────────────────────── ISA Board Definition ──────────────────────┐
│ Board Name: WG-1200VL                                              │
│ Manufacturer: DFI ┌────────── ISA DMA Definition ──────────┐      │
│ Board Type:       │                                   6 bit │      │
│               (   │ Channel:  [ ] -     Size:  ┌──────────┐ bit   │
│               (   │           [•] 1            │ [•] Byte │ or 16 bit │
│               (   │           [ ] 2            │ [ ] Word │ │      │
│                   │           [ ] 3            └──────────┘ │      │
│                   │           [ ] 4                         │      │
│        DMA        │           [ ] 5     Timing: ┌──────────┐│      │
│                   │           [ ] 6            │ [•] Default││      │
│     ┌───┐         │           [ ] 7            │ [ ] Type A ││      │
│     │ - │         │                            │ [ ] Type B ││      │
│     │ - │         ├────────────────────────────┴──────────┴┤      │
│     │ - │         │ [Ok=ENTER]  [Cancel=ESC]  [Erase=F4]    │      │
│     │ - │         └────────────────────────────────────────┘      │
│     └───┘              ┌───┐        ┌───┐        ┌───┐             │
│                       │ - │        │ - │        │ - │             │
│                       └───┘        │ - │        │ - │             │
│                                    └───┘        └───┘             │
├───────────────────────────────────────────────────────────────────┤
│ [Save=F10]    [Load=F9]    [New=F2]    [Delete=F4]    [Quit=ESC]   │
└───────────────────────────────────────────────────────────────────┘
```
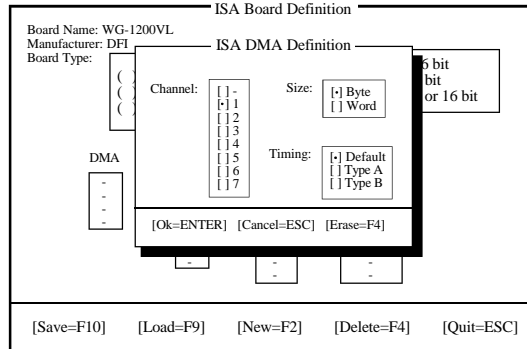
    b. Move the cursor to the appropriate DMA channel, size and timing of the ISA board, and press <Enter>.

    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.

```
┌─────────────────── ISA Board Definition ───────────────────┐
│ Board Name: WG-1200VL                                       │
│ Manufacturer: DFI                                           │
│ Board Type:  ┌── Level: ──── ISA IRQ Definition ───────┐   │
│              │        [ ] -          Trigger: ┌─────────┐ 16 bit    │
│    (         │        [•] 3                   │ [•] Edge│ 8 bit     │
│    (         │        [ ] 4                   │ [ ] Level│ 8 or 16 bit│
│    (         │        [ ] 5                   └─────────┘ │   │
│              │        [ ] 6                               │   │
│              │        [ ] 7                               │   │
│              │        [ ] 9                               │   │
│       DMA    │        [ ] 10                              │   │
│    ┌──┐      │        [ ] 11                              │   │
│    │ -│      │        [ ] 12                              │   │
│    │ -│      │        [ ] 14                              │   │
│    │ -│      │        [ ] 15                              │   │
│    │ -│      │                                            │   │
│              │  [OK=ENTER]  [Cancel=ESC]  [Erase=F4]      │   │
│              └────────────────────────────────────────────┘   │
│                ┌──┐      ┌──┐       ┌──┐                    │
│                │ -│      │ -│       │ -│                    │
│                └──┘      │ -│       │ -│                    │
│                          └──┘       └──┘                    │
│                                                            │
│ [Save=F10]   [Load=F9]   [New=F2]   [Delete=F4]  [Quit=ESC]│
└────────────────────────────────────────────────────────────┘
```

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.

```
┌─── ISA Board Definition ──────────────────────────┐
│ Board Name: WG-1200VL                              │
│ Manufacturer: DFI    ┌── ISA Port Definition ──┐   │
│ Board Type:          │                          │ 16 bit  │
│           (          │                          │ 8 bit   │
│           (          │ Start: [ 0 ] h  Size: [•] Byte │ 8 or 16 bit │
│           (          │ End:   [ 0 ] h        [ ] Word │  │
│                      │                          │   │
│  DMA                 │ [OK=ENTER]  [Cancel=ESC]  [Erase=F4] │
│  ┌──┐                └──────────────────────────┘   │
│  │ -│       -          -          -                  │
│  │ -│       -          -          -                  │
│  │ -│       -          -          -                  │
│  └──┘       -          -          -                  │
│             -          -          -                  │
│             -          -          -                  │
│                                                     │
│ [Save=F10]   [Load=F9]   [New=F2]   [Delete=F4]   [Quit=ESC] │
└─────────────────────────────────────────────────────┘
```

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.

```
┌─────────────── ISA Board Definition ───────────────┐
│ Board Name: WG-1200VL                               │
│ Manufacturer: DFI                                   │
│ Board Type:      ┌──────── ISA Memory Definition ────────┐
│                  │                    Use:  [·] System   │
│        Size:  [0]      KB              [ ] Expanded│it │
│                                        [ ] Other   │   │
│        Address: [0]      h             [ ] Virtual │   │
│                  │  [·] RAM        Width:  [·] Byte │   │
│        DM│       │  [ ] ROM                [ ] Word │   │
│          -       │                                  │   │
│          -       │  [·] Don't Cache  Decode: [·] 24 Bit│
│          -       │  [ ] Cache              [ ] 20 Bit│
│          -       │                                  │   │
│                  │ [OK=ENTER]  [Cancel=ESC]  [Erase=F4] │
│                  └──────────────────────────────────┘   │
│               [  -  ]        [  -  ]                     │
│                                                         │
│ [Save=F10]   [Load=F9]   [New=F2]   [Delete=F4]   [Quit=ESC] │
└─────────────────────────────────────────────────────┘
```

   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 similar to the one shown on page 6-21 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.

```
┌──────────────── ISA Board Definition ────────────────┐
│ Board Name: WG-1200VL                                 │
│ Manufacturer: DFI        ── ISA Board Database ──     │
│ Boa                                                   │
│   ┌──────────────────────────────────────────────┐   │
│   │  Select the ISA board to delete or press      │   │
│   │  <Esc> to exit.                               │   │
│   │                                               │   │
│   │  ┌────────────────────────────────────────┐  │   │
│   │  │ a                                      │  │   │
│   │  │ [ ] WG-1200VL                          │  │   │
│   │  │                                        │  │   │
│   │  │                                        │  │   │
│   │  └────────────────────────────────────────┘  │   │
│   │                                               │   │
│   │   [Ok=ENTER]        [Cancel=ESC]              │   │
│   └──────────────────────────────────────────────┘   │
│ [Save=F10]    [Load=F9]    [New=F2]    [Delete=F4]    [Quit=ESC] │
└───────────────────────────────────────────────────────┘
```
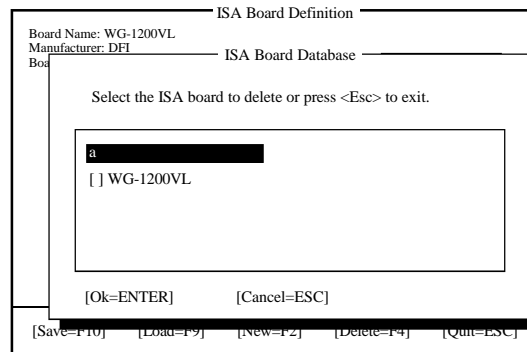
14. Quit returns you to the main menu without saving any changes.

❖ *DEMM 386 Software Driver*

DEMM 386 is a software driver that is used on the EB3486-TN system board to translate extended memory into expanded memory.

Copy the DEMM386.SYS driver from the provided diskette into your root directory. After copying the driver, add a line to your CONFIG.SYS file using the following syntax:

DEVICE = DEMM386.SYS [/B=xxxx] [/H=yy] [/S=zz] [/T=tttt]

[/X=aaaa-bbbb] [/I=cccc-dddd] [/L]

Note:
This line should be placed before any other drivers that use extended memory. The parameters enclosed in brackets "[" and "]" are optional and do not need to be included. Do not include the "[" and "]" when typing any parameters.

xxxx   is the EMS page frame base address in hexadecimal. In expanded memory management, a contiguous 64KB page frame segment must be reserved. The following are valid page frame addresses; C000, C400, C800, CC00, D000, D400, D800, DC00 and E000. The default page frame address is E000.

yy   is the maximum handle numbers (in hexadecimal) to be reserved. The default value is 40H (64 in decimal).

zz   is the maximum number of contexts (in hexadecimal) to be reserved. The default value is

 40H (64 in decimal).

tttt specifies an area of the extended memory (in kilobytes) to be reserved that will not be used by the EMS driver. Without the /T option, all of the extended memory will be used as expanded memory.

aaaa-bbbb specifies that a certain range of memory should be excluded from EMS mapping. aaaa is the starting segment address and bbbb is the ending segment address of the range. For example, if a network adapter in your system occupies memory from D0000 to D3FFF, specify /X=D000-D3FF to exclude this range from EMS mapping.

cccc-dddd specifies that a certain range of memory should be included in EMS mapping. cccc is the starting segment address and dddd is the ending segment address of the range. This option is very useful if you want the EMS driver to utilize unused video area. For example, if a Hercules graphics adapter is installed in your system, the memory range between A0000 to AFFFF is not used at all. By specifying /I=A000-AFFF, the EMS driver will utilize the area for EMS mapping.

/L specifies that the backfill area (384KB from 4000:0 to 9000:FFFF) will be used exclusively as conventional memory. The EMS driver will not be able to use this area as page frames or EMS pages.

❖ *Troubleshooting Checklist*

If you experience difficulty with the EB3486-TN 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 location.

4) Check that all populated memory banks are completely filled. If not, fill them completely.

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 EB3486-TN system board allows you to populate memory with 256Kx36, 512Kx36, 1Mx36, 2Mx36, 4Mx36 and 8Mx36 SIM modules. The following modules have been tested with this board.

For SIM 256Kx36 Modules

Brand	Chip Number
Hitachi	HM514280-JP8
Oki	M516256B-80J
Fujitsu	81C4256-80

For SIM 512Kx36 Modules

Brand	Chip Number
Panasonic	MN41C256SJ-08
Hitachi	HM514280-JP8
OKI	M514256B-80J
NEC	44256-70

For SIM 1Mx36 Modules

Brand	Chip Number
Toshiba	TC514400ASJL-70
Fujitsu	814400-80
OKI	M511000B-70J
NEC	424400-80

For SIM 2Mx36 Modules

Brand	Chip Number
Fujitsu	814400-80
OKI	M511000B-70J

❖ *Appendix B: System Error Report*

During the POST (Power On Self Test) routines, which are performed each time the system is powered on, errors may occur. Errors can be fatal or non-fatal.

Fatal Errors

Fatal errors are those which will not allow a system to continue the boot-up procedure. If a fatal error occurs, you should contact your dealer for repair.

Beep Count	Error Message
1	Refresh Failure
2	Parity Error
3	Base 64KB Memory Failure
4	Timer Not Operational
5	Processor Error
6	8042 - Gate A20 Failure
7	Processor Exception Interrupt Error
8	Display Memory Read/Write Error
9	ROM Checksum Error
10	CMOS Shutdown Read/Write Error

Non-Fatal Errors

Non-fatal errors are those which, in most cases, allow the system to continue the boot-up process. The error messages normally appear on the screen.

Error Message

1. CH-2 Timer Error
2. INTR #1 Error
3. INTR #2 Error
4. CMOS Battery State Low
5. CMOS Checksum Failure
6. CMOS Options Not Set
7. CMOS Display Type Mismatch
8. Display Switch Not Proper
9. Keyboard is Locked...Unlock It
10. Keyboard Error
11. KB/Interface Error
12. CMOS Memory Size Mismatch
13. FDD Controller Failure
14. HDD Controller Failure
15. C: Drive Error
16. D: Drive Error
17. C: Drive Failure
18. D: Drive Failure
19. CMOS Time & Date Not Set
20. Cache Memory Bad, Do not Enable Cache
21. 8042 Gate-A20 Error
22. Address Line Short!
23. DMA #2 Error/DMA #3 Error/DMA Error
24. No ROM Basic
25. Diskette Boot Failure/Invalid Boot Diskette
26. On Board Parity Error/Off Board Parity Error/ Parity Error????

❖ *Appendix C: Memory & I/O Maps*

Memory Address Map

| Address	Name	Function
00000000 to 0009FFFF	640K System Board RAM	System Board Memory
000A0000 to 000BFFFF	128K Video Display Memory	Reserved for Graphics Display Memory
000C0000 to 000DFFFF	128K I/O Expansion ROM	Reserved for ROM on I/O Adapter Card
000E0000 to 000EFFFF	64K Reserved on System Board	Duplicated Code Assignment at Address FE0000
000F0000 to 000FFFFF	64K ROM on the System Board	Duplicated Code Assignment at Address FF0000
00100000 to 07FFFFFF	Maximum Memory 126.875M	System Board Memory
FFFE0000 to FFFEFFFF	64K Reserved on System Board	Duplicated Code Assignment at Address 0E0000
FFFF0000 to FFFFFFFF	64K ROM on the System Board	Duplicated Code Assignment at Address 0F0000

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
0A0-0BF	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*

F B E A

```
1   1  1   1



31 31  31 31

1   1  1   1



19 19  19 19
```

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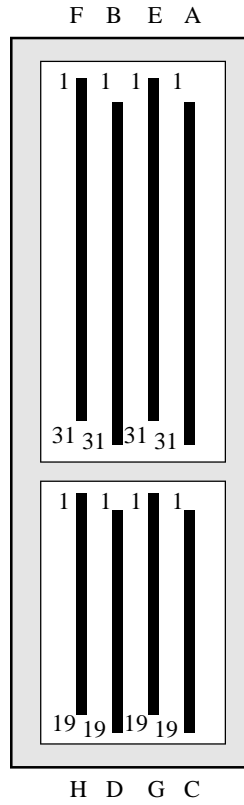
Note:
Rows A, C, B and D are ISA contacts
Rows E,G, F and H are EISA contacts

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	M-IO	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

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: System Overview*

TACT84544 EISA Peripheral Control Unit

The EB3486-TN uses a TACT84544 EISA Peripheral
Control Unit that supports the following:

Provides Enhanced DMA Functions
- ISA/EISA DMA compatible cycles
- 32-bit addressability
- Provides timing control for 8-, 16-, and 32-bit DMA
  data transfers
- Provides timing control for compatible "A",
  "B", and "C" (Burst) cycle types

Incorporates the Functionality of Two 82C59A Interrupt
Controllers
- 14 independently programmable channels for level-
  or-edge triggered interrupts

Five Programmable 16-bit Counter/Timers

Provides Logic for Generation/Control of Non-Maskable
Interrupts
- Parity errors for system and expansion board
  memory
- 8us and 32us bus timeout
- Immediate NMI interrupt via software control
- Fail-safe timer

DMA Channels

DMA Controller 1	DMA Controller 2
Ch0-Reserved for User Ch1-SDLC Ch2-Diskette (IBM Personal Computer) Ch3-Reserved for User	Ch4-Cascade for CTRL 1 Ch5-Reserved for User Ch6-Reserved for User Ch7-Reserved for User

Note:
DMA controller 1 supports 8-bit Data Transfer
DMA controller 2 supports 16-bit Data Transfer

Address generation for DMA Channels 3 to 0

Source	DMA High Page Memory	DMA Low Page Memory	DMA Controller 1
Address	A31 ⟷ A24	A23 ⟷ A16	A15 ⟷ A0

Address generation for DMA Channels 7 to 5

Source	DMA High Page Memory	DMA Low Page Memory	DMA Controller 2
Address	A31 ⟷ A24	A23 ⟷ A17	A16 ⟷ A1

Page Memory Address

DMA Channel	I/O Address 8237 Compatible Segment	I/O Address Low Page Segment	I/O Address High Page Segment
0	0000h	0087h	0487h
1	0004h	0083h	0483h
2	0008h	0081h	0481h
3	000Ch	0082h	0482h
5	00C4h	008Bh	048Bh
6	00C8h	0089h	0489h
7	00CCh	008Ah	048Ah

System Interrupts

A NMI is an interrupt requiring immediate attention and has priority over the normal interrupt lines (IRQX). NMI interrupts are caused by the following conditions:

NMI Source

Parity #
Fail Safe Timer
IOCHK #
Bus Timeout
~~Write to Port 0462h~~

Interrupt Controller 1	Interrupt Controller 2
IRQ0-Timer Output 0 (Out 0)	IRQ8-Realtime Clock INT
IRQ1-Keyboard (Output Buffer Full)	IRQ9-Software Redirected
	to INT 0AH (IRQ2)
IRQ3-Serial Port 2	IRQ10-Reserved
IRQ4-Serial Port 1	IRQ11-Reserved
IRQ5-Parallel Port 2	IRQ12-Reserved
IRQ6-Diskette Controller	IRQ14-Fixed Disk Controller
IRQ7-Parallel Port 1	IRQ15-Reserved

Note:
Any or all interrupts including NMI may be masked. The 14 levels of system interrupts from high to low are ordered as: IRQ0>IRQ1>IRQ8>IRQ9>IRQ10>IRQ11 >IRQ12>IRQ14>IRQ15>IRQ3>IRQ4>IRQ5 >IRQ6>IRQ7.

System Timers

	Interval Timer 1	Interval Timer 2
Channel 0	System Timer (IRQ0)	Fail-Safe Timer (NMI Interrupt)
Channel 1	Refresh Request Generator (15*u*s Rate Generator Period Signal)	
Channel 2	Tone Generation for Speaker	CPU Speed Control

Real-Time Clock

Address	Function
00	Seconds
01	Second Alarm
02	Minutes
03	Minute Alarm
04	Hours
05	Hour Alarm
06	Day of Week
07	Date of Month
08	Month
09	Year
0A	Register A
0B	Register B
0C	Register C
0D	Register D

Burst Cycles

The 486 microprocessor accepts burst cycles for any bus request that requires more than one data cycle. During burst cycles, a new data item is strobed into the 486 microprocessor for every clock rather than every other clock as in non-burst cycles.

TACT84543 EISA Bus Control Unit

The EB3486-TN system board uses the 82358 EISA Bus Controller that supports the following:

• Provides EISA/ISA bus cycle compatibility
• Interfaces host (CPU) bus to EISA/ISA bus
• Translates host bus cycles to EISA/ISA bus cycles
• Generates ISA signals for EISA masters
• Generates EISA signals for ISA masters
• Supports 8-, 16-, or 32-bit DMA cycles
• Supports host and EISA/ISA refresh cycles
• Generates control signals for address and data buffers
• Supports byte assembly/disassembly for 8-, 16-, or 32-bit data transfers
• Supports I/O recovery mechanism

Extended CMOS Memory DS1387

The EB3486-TN system board has Extended CMOS Memory installed onboard. Configuration information is stored in the Extended CMOS Memory so the BIOS can initialize the system board and the expansion boards inserted in the EISA slots every time you power up your system.

The Extended CMOS Memory uses a 4Kx8 SRAM which is equipped with an internal battery. If the battery runs down, the information stored in CMOS memory may be lost. If this happens you must either reconfigure the system or copy the backup configuration file into the Extended CMOS Memory.
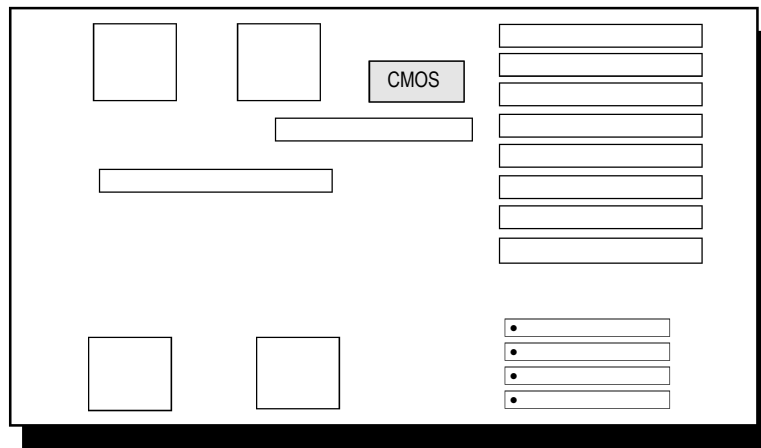
Location of the Extended CMOS Memory on the EB3486-TN

❖ *Appendix F: Connector Pin Assignments*

Jumper J4/J10*
Keyboard Connector

Pin	Function
1	Keyboard Clock
2	Keyboard Data
3	No Connection
4	Ground
5	+5V DC

Jumper J1
HardwareReset Connector

Pin	Function
1	Reset Signal
2	Ground

*   *Use only one.*

Jumper J2
Speaker Connector

Pin	Function
1	Speaker Data Out
2	No Connection
3	Ground
4	+5 V DC

Jumper J6
Power On and Keylock Connector

Pin	Function
1	LED Power
2	Key
3	Ground
4	Keyboard Inhibitor
5	Ground

Connector CN10
PS/2 Mouse Connector

Pin	Function
1	Mouse Data
2	N.C.
3	Gnd
4	+5V
5	Mouse Clock
6	N.C.

Connectors PS1 and PS2
Power Supply Connector

Connector	Pin	Function
PS1	1	Power Good
	2	+5V DC
	3	+12V DC
	4	-12V DC
	5	Ground
	6	Ground
PS2	1	Ground
	2	Ground
	3	-5V DC
	4	+5V DC
	5	+5V DC
	6	+5V DC

❖ *Appendix G: AMI BIOS Hard Disk Table*

Type	Cyln	Head	WPcom	LZone	Sect	Size
1	306	4	128	305	17	10MB
2	615	4	300	615	17	20MB
3	615	6	300	615	17	31MB
4	940	8	512	940	17	62MB
5	940	6	512	940	17	47MB
6	615	4	65535	615	17	20MB
7	462	8	256	511	17	31MB
8	733	5	65535	733	17	30MB
9	900	15	65535	981	17	112MB
10	820	3	65535	828	17	20MB
11	855	5	65535	855	17	35MB
12	855	7	65535	855	17	50MB
13	306	8	128	319	17	28MB
14	733	7	65535	733	17	43MB
16	612	4	0	663	17	20MB
17	977	5	300	977	17	41MB
18	977	7	65535	977	17	57MB
19	1024	7	512	1024	17	60MB
20	733	5	300	732	17	30MB
21	733	7	300	732	17	43MB
22	733	5	300	733	17	30MB
23	306	4	0	336	17	10MB
24						
	925					
		7				
			0			
				925		

Type	Cyln	Head	WPcom	LZone	Sect	Size
30	918	7	918	918	17	53MB
31	1024	11	65535	1024	17	94MB
32	1024	15	65535	1024	17	128MB
33	1024	5	1024	1024	17	43MB
34	612	2	128	612	17	10MB
35	1024	9	65535	1024	17	77MB
36	1024	8	512	1024	17	68MB
37	615	8	128	615	17	41MB
38	987	3	987	987	17	25MB
39	987	7	987	987	17	57MB
40	820	6	820	820	17	41MB
41	977	5	977	977	17	41MB
42	981	5	981	981	17	41MB
43	830	7	512	830	17	48MB
44	830	10	65535	830	17	69MB
45	917	15	65535	918	17	114MB
46	1224	15	65535	1223	17	152MB
47			User defined			

❖ *Appendix H: VESA VL-Bus Slot Pin Assignments*

The EB3486-TN station board is equipped with one VESA VL-Bus slot to accommodate the CPU module. The table below lists the pin-out specifications of the VESA slot I/O pinouts.

Pin#	Signal	Pin#	Signal
A1	DAT01	B1	DAT00
A2	DAT03	B2	DAT02
A3	Gnd	B3	DAT04
A4	DAT05	B4	DAT06
A5	DAT07	B5	DAT08
A6	DAT09	B6	Gnd
A7	DAT11	B7	DAT10
A8	DAT13	B8	DAT12
A9	DAT15	B9	Vcc
A10	Gnd	B10	DAT14
A11	DAT17	B11	DAT16
A12	Vcc	B12	DAT18
A13	DAT19	B13	DAT20
A14	DAT21	B14	Gnd
A15	DAT23	B15	DAT22
A16	DAT25	B16	DAT24
A17	Gnd	B17	DAT26
A18	DAT27	B18	DAT28
A19	DAT29	B19	DAT30
A20	DAT31	B20	Vcc
A21	ADR30	B21	ADR31
A22	ADR28	B22	Gnd
A23	ADR26	B23	ADR29
A24	Gnd	B24	ADR27
A25	ADR24	B25	ADR25
A26	ADR22	B26	ADR23
A27	Vcc	B27	ADR21
A28	ADR20	B28	ADR19
A29	ADR18		
		B29	Gnd
A30	ADR16	B30	ADR17

Pin#	Signal	Pin#	Signal
A32	ADR12	B32	Vcc
A33	ADR10	B33	ADR13
A34	ADR08	B34	ADR11
A35	Gnd	B35	ADR09
A36	ADR06	B36	ADR07
A37	ADR04	B37	ADR05
A38	WBACK#	B38	Gnd
A39	BE0#	B39	ADR03
A40	Vcc	B40	ADR02
A41	BE1#	B41	n/c
A42	BE2#	B42	Reset#
A43	Gnd	B43	D/C
A44	BE3#	B44	M/IO #
A45	ADS#	B45	W/R
A48	LRDY #	B48	RDYRTN#
A49	LDEV #	B49	Gnd
A50	LRDQ #	B50	IRQ9
A51	Gnd	B51	BEDY#
A52	LGNT #	B52	BLAST#
A53	Vcc	B53	ID0
A54	ID2	B54	ID1
A55	ID3	B55	Gnd
A56	ID4	B56	LCLK
A57	LKEN#	B57	Vcc
A58	LEADS#	B58	LBS16#

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