Introduction

The Purpose of this Manual

This manual is specifically written to help the user to configure the 486 System Board. The user can optimize the system performance by changing the default configuration of the system board.

Features of System Board

● Support 80486SX, 80486DX/DX2, OverDrive™CPU and Pentium™ OverDrive™ Processor

● Support CPU speed running at 16/20/25/33/40/50/66MHz

● The memory configuration of DRAM memory is 1, 2, 4, 8, 16, 20MB

● Support 256K, 512K, 1M and 4M DRAM SIMM

● Support 128K Write-back secondary cache

● Optional 32 bit Shadowing RAM for system and video BIOS

● Optional adapter BIOS shadowing in 32K Block

● Two RS232C serial communication interfaces

● One parallel printer interface

● One joystick interface

● IDE Hard disk controller interface

● Floppy disk controller interface

Section 1
System Memory Expansion

There are a total of 8 SIMM sockets which divided into two banks labelled 'Bank 0' and 'Bank 1' on the System Board. The system board can support 256K x 9 SIMMs, 512K x 9 SIMMs, 1M x 9 SIMMs or 4M x 9 SIMMs. The DRAM speed should be 80ns or faster. The system board can also support 'x8' SIMMs provided the parity is diabled, refer to **Setup Menu** in Part B **BIOS Reference** for details on disabling parity.

The following are the supported DRAM configurations

Bank 0	Bank 1	Total Memory
256K	none	1MB
256K	256K	2MB
1M	4M	20MB
1M	none	4MB
512K	none	2MB
512K	512K	4MB
1M	1M	8MB
4M	none	16MB
4M	4M	32MB

For location of banks on system board, refer to Section 5.

Section 2
Video Memory Expansion

The Local Bus VGA function on the 486 system board comes with at least 512K Bytes display RAM, and allows upgrading to maximum 1M Bytes display RAM. Some selected models are already equipped with 1M Bytes display RAM, in which no further expansion will be needed.

The amount of display RAM installed will determine the available display mode. The higher the display RAM size, the higher the screen resolution and color is allowed.

To expand from 512K Display RAM to 1M Display RAM, the following IC chips are needed:

Item	Qty
DIP DRAM 256K x 4, 70ns or faster	4

To install the DRAM chips, you may have to remove the Power Supply Unit first. Refer to your system unit User's Manual for instructions. For some selected models, the area for Display RAM expansion is exposed and Power Supply Unit removal is not needed.

The DRAM Chips should be inserted at Video BANK 1 of the motherboard, i.e. locations U58, U59, U60, U61. Refer to Section 5 for exact location of this BANK of display RAM. Make sure that the orientation of the chips installed at BANK 1 must be same as those at BANK 0.

Section 3
VGA Display Modes

The VGA Controller on the 486 system board is of VESA local bus type, which provides greatly improved performance over traditional ISA VGA addon display cards.

This VGA Controller features True Color types, meaning that it has a 24 bit palette DAC which provides a selection of 16 million color.

The following table shows the VGA modes available, and their display RAM size reguirements:

RESOLUTION	DESCRIPTION	DISPLAY MEMORY REQ.
640 X 480	256 color; 8 bits/pixel 32K and 64K color; 16 bits/pixel 16M color; 24 bits/pixel	512K 1024K 1024K
800 X 600	16 color; 4 bit-planes 256 color; 8 bits/pixel 32K and 64K color; 16 bits/pixel	512K 512K 1024K
1024 X 768	16 color; 4 bit-planes (interlaced and non-interlaced) 256 color; 8 bits/pixel (interlaced and non-interlaced)	512K 1024K
1280 X 1024	16 color; 4 bit-planes	1024K

Refer to Part C **VGA Display Drivers and Utilities** for setting up of these modes.

Note: Some modes are not supported by all VGA monitors. Check your VGA monitor specification before setting up for these modes.

Section 4
System Board Configuration

Under some circumstances you may want to change the default configuration of the system board. These changes are made through jumper setting on the system board. The following section will describe the function of jumpers and their corresponding location on the system board will be shown in Section 5.

Jumper Functions

JP1, JP2, JP3, JP4   -   **External CACHE SRAM type select (U25-U28)**

32K x 8
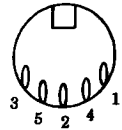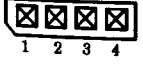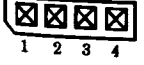
32K x 9

Set the DRAM Parity check in setup menu according to the following table for proper operation of the system.

DRAM	SRAM	DRAM Parity Check (in Setup Menu)	Remark
x8	x8/x9/ Not Installed	Disabled	No parity check
x9	x9/x8	Enable	Parity check

x8 DRAM	=	SIMM Modules with no parity bit
x9 DRAM	=	SIMM Modules with parity bit
x8 SRAM	=	32K x 8 SRAM
x9 SRAM	=	32K x 9 SRAM

JP5   **System Clock Speed**

20MHz

25MHz

33MHz

JP6   **MCLK Select**

Default

Reserved

JP7   **Battery Select**

On-board Rechargeable Battery

External Battery Pack, Connected to J4

Note!

Jp10 1-2
JP9 2-3
For 486 SX
CPU's on
some version
of board
? Both
Work?

JP8   **CMOS Setup (Battery Backup)**

Normal

Erase CMOS Setting

JP9   **CPU Reset Select**

Default

Reserved for factory selection

JP10   **Upgrade Processor Select**

Upgrade Processor / 80487SX present in
Upgrage Processor Socket

Upgrade Processor Socket vacant

JP11   **Factory Test Jumper**

Reserved for factory selection

Default

J17   **On Board I/O Select**

On Board I/O Enable

On Board I/O Disable

J1   **Keyboard Connector**

1. KEYBOARD CLOCK
2. KEYBOARD DATA
3. NOT USED
4. GND
5. +5V

J2   **Front Panel Connector**

1. N.C.
2. N.C.
3. GND
4. POWER LED
5. SYSTEM RESET
6. KEYBOARD INHIBIT
7. N.C.
8. GND

J3   **Hard Drive LED Connector**

1. +5V
2. HD LED

J4   **Battery Connector**

1. +4.5V
2. N.C.
3. GND
4. GND

J5   **Speaker Connector**

1. +5V
2. SPEAKER DATA

J8

Power Connector

```
 1  ○○
 2  ○○
 3  ○○
 4  ○○
 5  ○○
 6  ○○
 7  ○○
 8  ○○
 9  ○○
10  ○○
11  ○○
12  ○
```
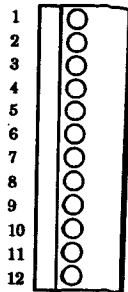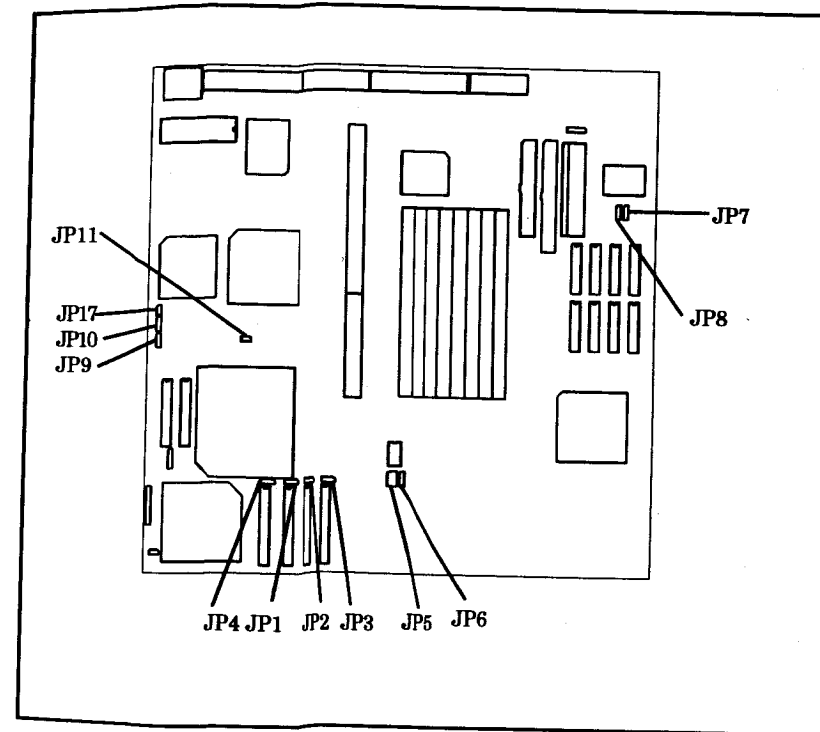
1. POWER GOOD
2. +5 V
3. +12 V
4. -12 V
5. GND
6. GND
7. GND
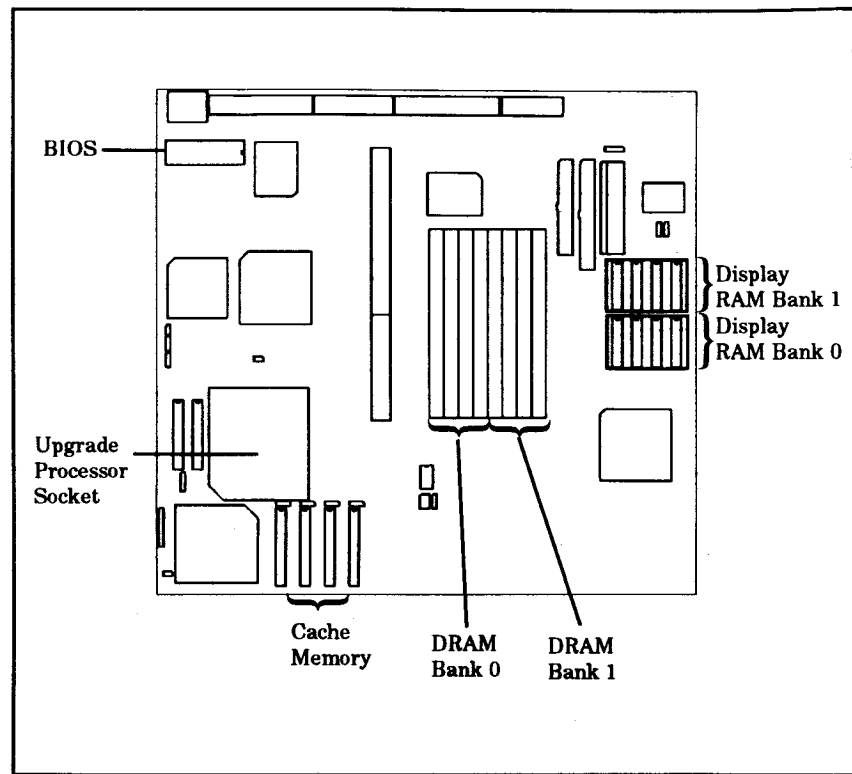8. GND
9. -5 V
10. +5 V
11. +5 V
12. +5 V

Section 5
System Board Layout

The following diagrams show the relative positions of the jumpers, connectors, major components and IO ports on the system board.

Jumpers

Memory Banks and Major Components Location

BIOS

Display
RAM Bank 1
Display
RAM Bank 0

Upgrade
Processor
Socket

Cache
Memory

DRAM
Bank 0

DRAM
Bank 1

I/O Port and Conectors Location

J1
Keyboard
Connector

J13
Parallel
Port

J14
Game
Port

J11
Serial
Port B

J10
Serial
Port A

J16
VGA
Connector

J4
External
Battery
Pack
Connector

J8 Power
Connector

J12 IDE
Drive
Connector

J9 Floppy
Connector

J5
Speaker

J2
Front
Panel

J3
Hard Disk
LED