Chapter 1
Introduction

The 80486 Deep Green mainboard is a 32-bit high-performance system board. This mainboard is not only compatible with IBM AT systems, but it also provides power-saving features that allow the user to program the timer.

You can configure the 80486 Deep Green mainboard for use with many 486-based microprocessors, such as the following:

❑ Intel P24T

❑ Intel P24D

❑ Intel 80486DX4 (P24C)

❑ Intel 80486DX2 / DX / SX - SL

❑ Intel 80486DX2 / DX /SX

❑ Cyrix CX486DX2 / DX / S

❑ AMD AM486DX4 / DX2 / DX

❑ UMC U5

The 80486 Deep Green mainboard features on-board power management that allows the user to assign system clock rates, hard disk power saving and display power saving when entering doze mode, suspend mode or inactive mode.

Key Features

Advanced features of the 80486 Deep Green mainboard include:

- Supports CPUs running at 25/33/40/50/66/75/80/100 MHz:
  - Intel P24T
  - Intel P24D
  - Intel 80486DX4 (P24C)
  - Intel 80486DX2 / DX / SX - SL
  - Intel 80486DX2 / DX /SX
  - Cyrix CX486DX2 / DX / S
  - AMD AM486DX4 / DX2 / DX
  - UMC U5

- L1 write back or write through cache

- L2 write back policy for high performance

- Flexible cache RAM size 64/128/256/512/1024 KB in two banks or one bank with 16 bytes line size

- DRAM auto-detection / banking

- Four banks of DRAM with memory size to 64 MB using combinations of 256K, 1M, 2M, 4M, 8M, 16M, 32M, 64M SIMM

- Provides green PC power management

- Level 2 cache power saving

- Supports four power management modes for SMM (System Management Mode) CPUs: **On** , **Standby** , **Inactive** , **Off**.

- Seven 16 bit I/O slots including three 32-bit VL-Bus master slots

- On-board CR2032 3.0 Volt lithium battery

- 237-pin ZIF socket

- Provides flash ROM support

- Fully supports Microsoft APM (advanced power management)

- Supports 3.3 / 4.0 Volts for low voltage CPU
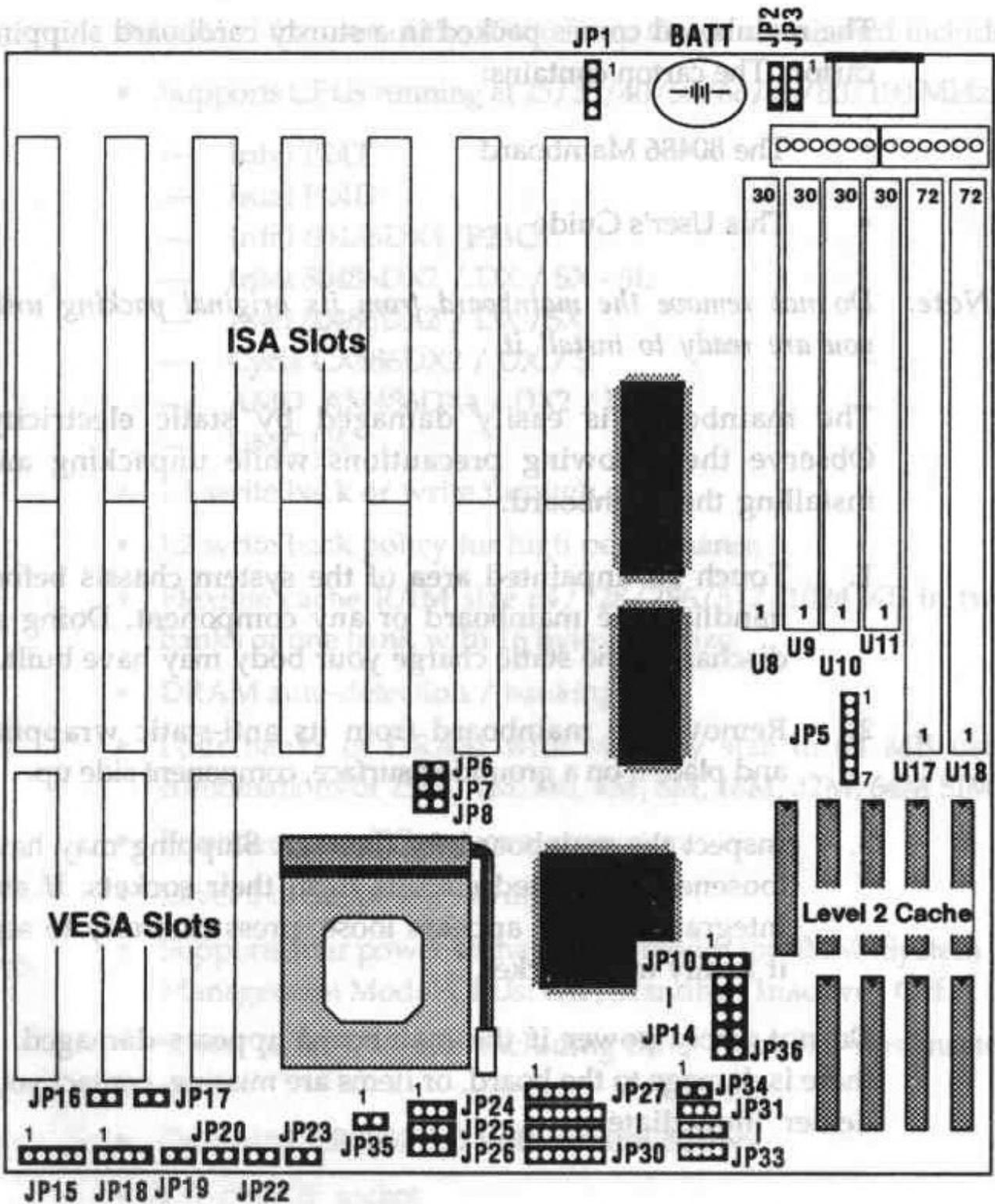
Mainboard Layout

Figure 1-1. Mainboard Layout

Note: When you open the jumper, attach the plastic jumper cap to one of the pins so you won't lose it.

For setting 3-pin jumpers, the symbols below are used:

1-2   Pins 1 and 2 are Shorted with a jumper cap.

2-3   Pins 2 and 3 are Shorted with a jumper cap.

For setting 2-pin jumpers, the following symbols are used:

ON   The jumper is Shorted (ON) when the jumper cap is placed over the two pins of the jumper.

OFF   The jumper is Open (OFF) when the jumper cap is taken off of the jumper.

JP3 - Flash ROM VPP Supply Selector

JP3 is the Flash ROM Program Voltage selector.

Description	JP3
5 volt	1-2
12 volt	2-3

JP27~JP30, JP32, JP33– CPU Type Jumpers

Set jumpers JP27~JP30, JP32,and JP33 so that the mainboard recognizes the type of CPU installed. Set CPU type as below.

Note: A wrong setting may cause the system to hang up.

Jumper	JP27	JP28	JP29	JP30	JP32	JP33
486SX	OFF	2-3	OFF	OFF	OFF	2-3
486DX4/ SL	OFF	2-3	OFF	OFF	1-2	1-2, 3-4
486DX/ DX2	1-2, 3-4	1-2	1-2	5-6	1-2	1-2, 3-4
P24D	1-2, 3-4	1-2, 4-5	1-2, 4-5	3-4, 5-6	1-2	1-2, 3-4
P24T	1-2, 3-4	1-2	1-2	5-6	2-3	1-2, 3-4
Cyrix M6	2-3, 4-5	1-2, 3-4, 5-6	1-2, 3-4, 5-6	1-2, 3-4, 5-6	OFF	2-3
Cyrix M7	2-3	1-2, 3-4, 5-6	1-2, 3-4, 5-6	2-3, 4-5	1-2	1-2, 3-4
UMC U5	OFF	2-3	2-3	1-2	3-4	2-3
AMD	OFF	2-3	OFF	OFF	1-2	1-2, 3-4

JP6~JP8 – CPU Clock Setting

CPU Clock	JP6	JP7	JP8
25 MHz	OFF	OFF	ON
33 MHz	ON	ON	ON
40 MHz	OFF	ON	ON
50 MHz	ON	OFF	OFF

JP31– Intel 80486DX4 CPU Clock Multiplier Jumper

Clock Multiplier	JP31
3 X	OFF
2.5 X	1-2
2 X	2-3

JP34– AMD 80486DX4 CPU Clock Multiplier Jumper

Clock Multiplier	JP34
3 X	OFF
2 X	ON

JP21~JP24, JP35 – CPU Power Selectors

CPU Power	JP24	JP25	JP26	JP35
5 Volts	2-3	2-3	2-3	OFF
3.3 Volt	1-2	1-2	1-2	ON
4 Volts	1-2	1-2	1-2	OFF

JP16 - VESA Clock Selector

When the CPU clock is less than or equal to 33 MHz take the jumper OFF of JP16. When the CPU clock is greater than 33 MHz put a jumper ON JP16.

Description	JP16
< = 33 MHz	OFF
> 33 MHz	ON

JP17 - VESA Wait State

JP17 sets the VESA wait state.

Description	JP16
0 WS	OFF
1 WS	ON

Memory Configuration

The DRAM sub-system contains 4 banks. Four 30-pin SIMM sockets U8~U11 are bank 2; two 72-pin SIMM sockets U17 is bank 1 and 3; U18 is bank 0 and 2.

You can not install 30-pin SIMM if you use 2-bank type DRAM in U18, but you can install 30-pin SIMM if you use 1-bank type DRAM in U18.

U8~U11 BANK 2	U18 BANK 0, 2	U17 BANK 1, 3
Installed	1-bank type DRAM or None	2-bank type DRAM or 1-bank type DRAM or None
None	2-bank type DRAM or 1-bank type DRAM or None	2-bank type DRAM or 1-bank type DRAM or None