

CHAPTER 1

INTRODUCTION

1.1 OVERVIEW

The EXP8046 is a new chip solution that offers the cost-effective system integration for 486 and P24T systems. Besides the standard features, the EXP8046 also supports VESA standards and power management features for most of advanced CPUs on the market. With the use of UM8002/UM8004 TTL ASIC buffer, the TTL components required on the main board are further reduced.

1.2 SYSTEM FEATURES

- Supports INTEL 486SX, DX, DX2, DX4, P24T, S-SERIAL, P24D
AMD DX, DX2, DXL.
CYRIX M6, M7, DX2.
UMC486.
- Supports 3 system states for power saving : STANDBY / SUSPEND / ON.
- Supports L1/L2 write back/write through cache feature.
- Supports 64KB/ 128KB/ 256KB cache size.
- Supports 72pin SIM MODULES.
- Supports SMI/ SMM/ PMU/ APM power controllers.
- Supports 2 MASTER 32-bit VESA Bus & 4 PCI Bus.

1.3 SYSTEM SPECIFICATIONS

Processor :	INTEL 486DX/SX/DX2/DX4/P24T P24D 486CPU CYRIX M6/M7/DX2 486CPU AMD DX/DX2/DXL 486CPU UMC486 CPU
CPU Clock :	25/33/40/50 MHz CPU
Memory Configuration :	2MB-128MB
SRAM Configuration :	64K/128K/256K
BIOS Subsystem :	PHOENIX BIOS
Additional BIOS feature :	Set program Resides in ROM
I/O Subsystem NO. slot :	Three 16-bit ISA Bus & Four 32-bit PCI Bus & Two 32 bit VESA Local Bus
Dimension :	10.4" × 8.8" , 2/3 Baby AT Size

Additional features

Miscellaneous connectors :	Reset Button, Internal Battery, Turbo SW, Flash LED(Turbo LED) for Power Green
Board design :	4-layer Implementation for Low Noise Operation

1.4 SYSTEM PERFORMANCE

SOFTWARE CPU TYPE	LANDMARK V2.0	POWER METER V1.7 MIPS	NORTON V7.0 CPU SPEED
INTEL DX-33MHz	111.43MHz	13.5MIPS	71.9
AMD DX-40MHz	133.76MHz	16.2MIPS	86.3
CYRIX M7 DX-40MHz	131.92MHz	15.8MIPS	67.9
INTEL DX2-50MHz	167.20MHz	21.9MIPS	108.0
CYRIX M7 DX2-50MHz	164.86MHz	19.8MIPS	84.8
INTEL DX-50MHz	167.27MHz	20.2MIPS	107.9
INTEL DX2-66MHz	222.92 MHz	27.3MIPS	131.9

The DRAM type of SIMM-1/2 type is independent to that of SIMM-3/4.

SIMM-1	SIMM-2	GROUP SIZE
256kx36 (single)	256kx36 (single)	2MB
1Mx36 (single)	NONE	4MB
NONE	1Mx36 (single)	4MB
1Mx36 (single)	1Mx36 (single)	8MB
1Mx36 (double)	NONE	8MB
NONE	1Mx36 (double)	8MB
1Mx36 (double)	1Mx36 (double)	16MB
2Mx36 (single)	NONE	8MB
NONE	2Mx36 (single)	8MB
2Mx36 (single)	2Mx36 (single)	16MB
2Mx36 (double)	NONE	16MB
NONE	2Mx36 (double)	16MB
2Mx36 (double)	2Mx36 (double)	32MB
4Mx36 (single)	NONE	16MB
NONE	4Mx36 (single)	16MB
4Mx36 (single)	4Mx36 (single)	32MB
4Mx36 (Double)	NONE	32MB
NONE	4Mx36 (Double)	32MB
4Mx36 (Double)	4Mx36 (Double)	64MB

Some illegal examples of the SIMM-1/2 & SIMM3/4 COMBINATION...

SIMM-1 (SIMM-3)

SIMM-2 (SIMM-4)

1Mx36 single

1Mx36 double

(single/double)

1Mx36 double

1Mx36 single

(double/single)

4Mx36 single

1Mx36 single

(4M/1M)

1Mx36 single

4Mx36 single

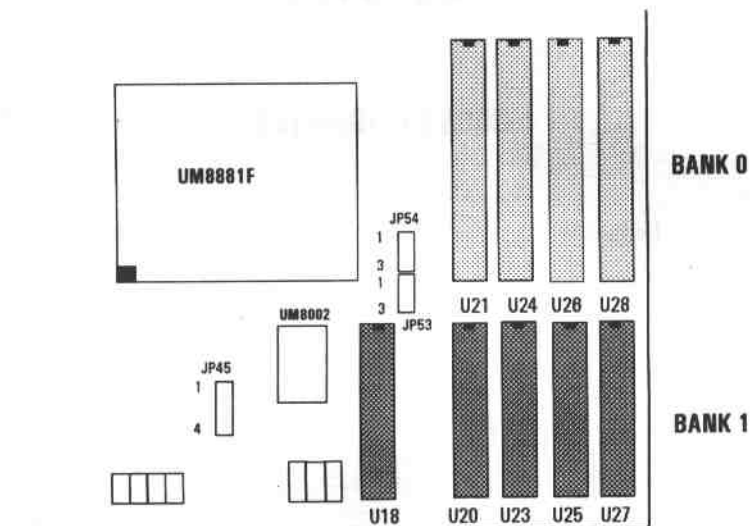
(1M/4M)

SIMM-3	SIMM-4	GROUP SIZE 2
256Kx36 (single)	256Kx36 (single)	2MB
1Mx36 (single)	NONE	4MB
NONE	1Mx36 (single)	4MB
1Mx36 (single)	1Mx36 (single)	8MB
1Mx36 (double)	NONE	8MB
NONE	1Mx36 (double)	8MB
1Mx36 (double)	1Mx36 (double)	16MB
2Mx36 (single)	NONE	8MB
NONE	2Mx36 (single)	8MB
2Mx36 (single)	2Mx36 (single)	16MB
2Mx36 (double)	NONE	16MB
NONE	2Mx36 (double)	16MB
2Mx36 (double)	2Mx36 (double)	32MB
4Mx36 (single)	NONE	16MB
NONE	4Mx36 (single)	16MB
4Mx36 (single)	4Mx36 (single)	32MB
4Mx36 (Double)	NONE	32MB
NONE	4Mx36 (Double)	32MB
4Mx36 (Double)	4Mx36 (Double)	64MB

$$\text{TOTAL RAM SIZE} = \text{GROUP SIZE} + \text{GROUP SIZE \# 2}$$

NOTE: The minimum group size of EXP8046 is 2MB (except zero). If you use single-sided 256Kx36 SIMMs for EXP8046 you must put two or four SIMMs on the motherboard.

2.2 SRAM INSTALLATION



CACHE CONFIGURATION SIZE

64K		128K		256K \clubsuit		512K		
TAG RAM	DATA RAM	TAG RAM	DATA RAM	TAG RAM	DATA RAM	TAG RAM	DATA RAM	
U18	U20-U23, U25-U28	U18	U21, U24, U26, U28	U18	U20-U25, U27-U28	U18	U21, U24, U26, U28	
8K \times 8	8K \times 8	8K \times 8	32K \times 8	16K/32K \times 8	32K \times 8	16K/32K \times 8	64K \times 8	
JP45	JP53	JP54	JP45	JP53	JP54	JP45	JP53	JP54
1 2 3 4	1 2 3	1 2 3	1 2 3 4	1 2 3 4	1 2 3	1 2 3 4	1 2 3 4	1 2 3

\clubsuit Default Setting

ERRATA

ExpertBoard 8046

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Original

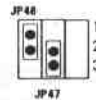
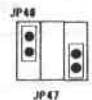
Modified



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Additional

JP25: AMD DX2 CPU (3.45V)

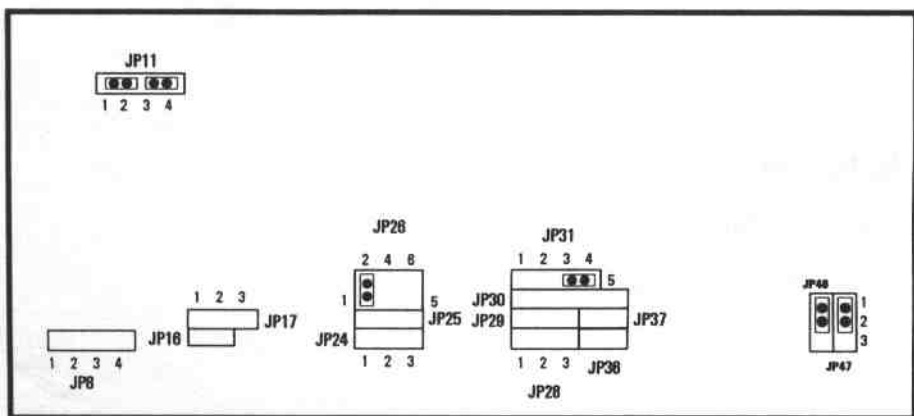
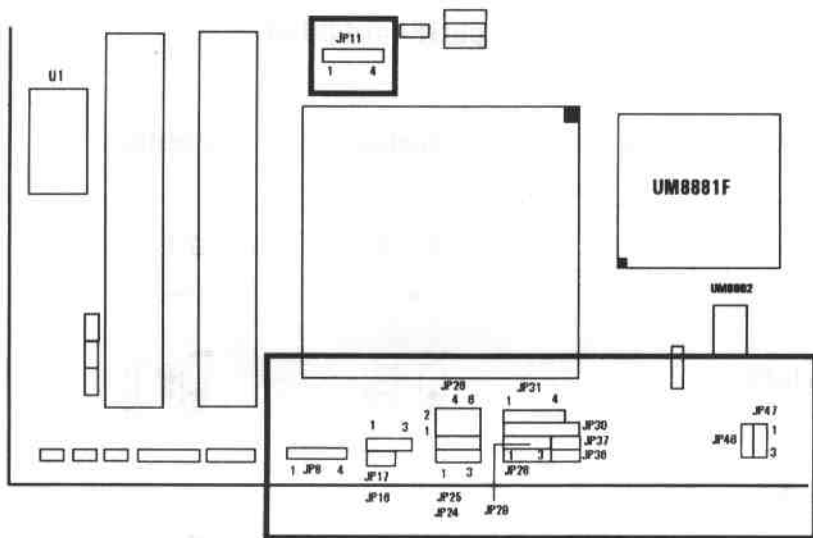


AMD DX4 CPU (3.45V)

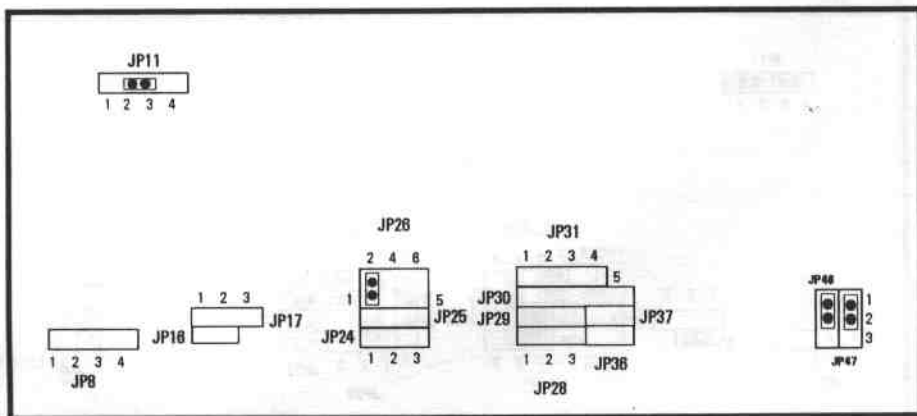
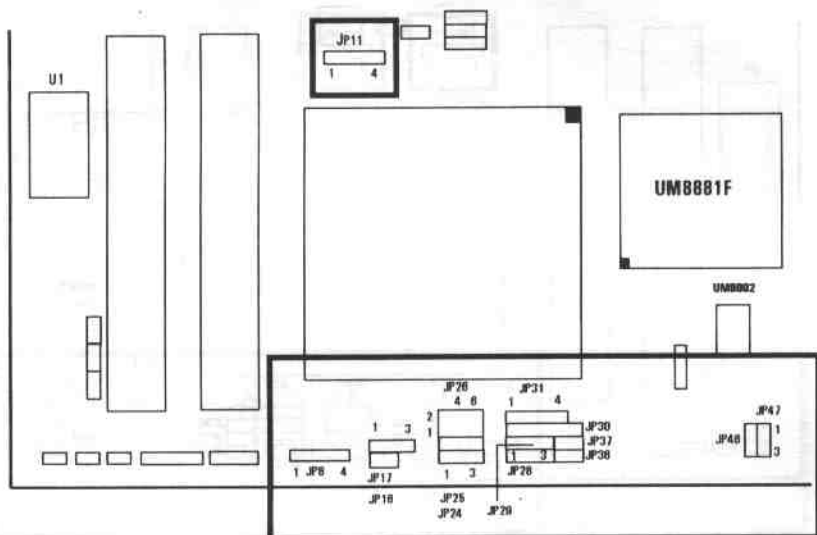


2.3 CPU INSTALLATION

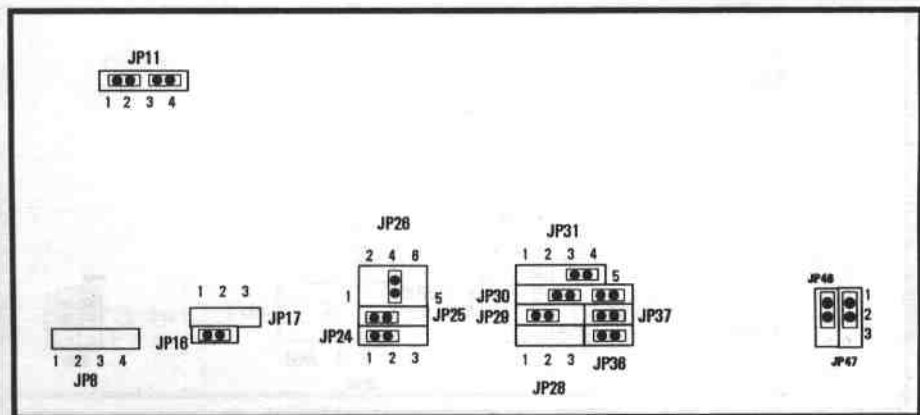
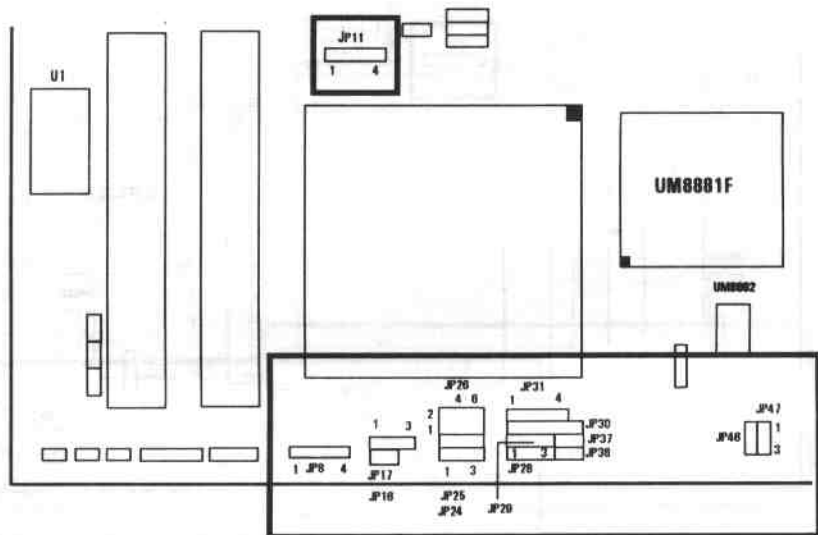
486DX/DX2 CPU TYPE



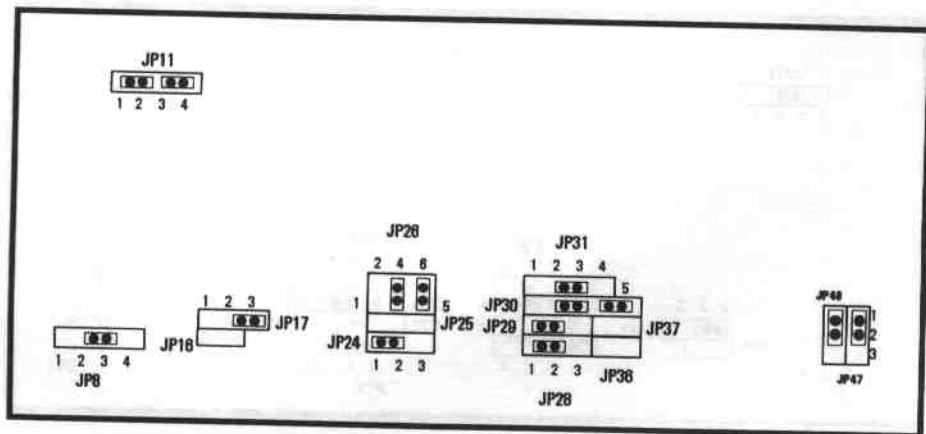
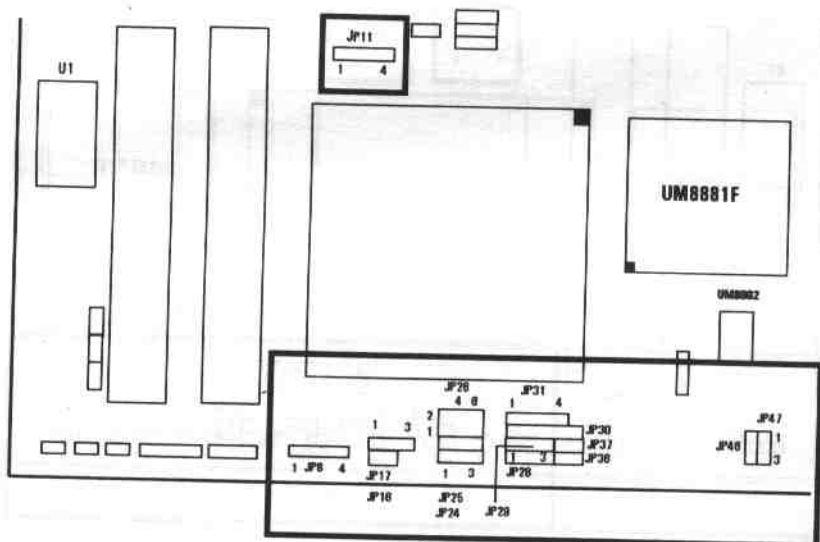
486SX (PGA) CPU TYPE



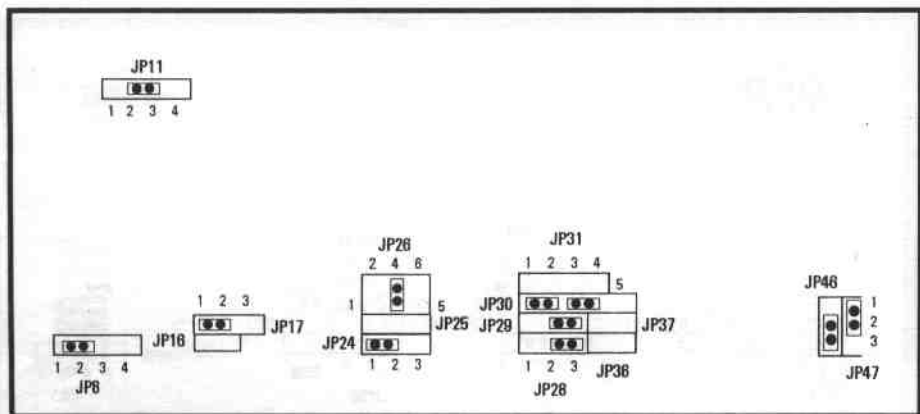
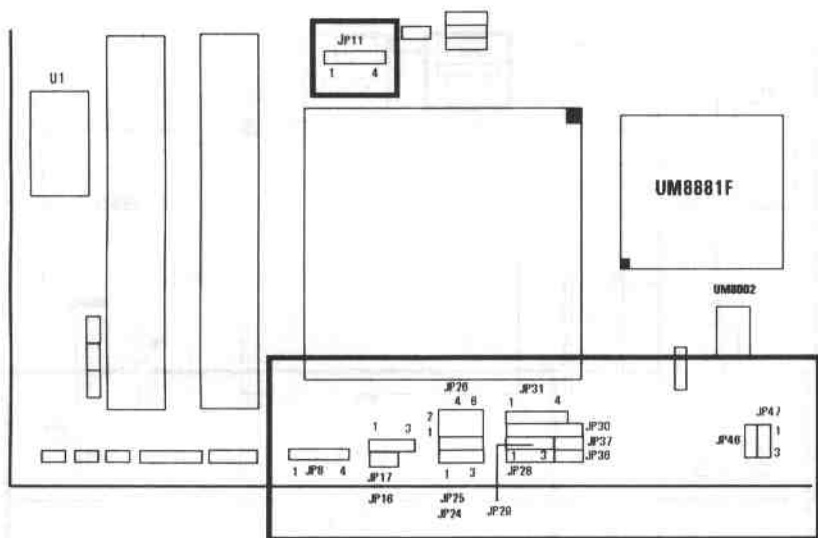
P24D CPU TYPE



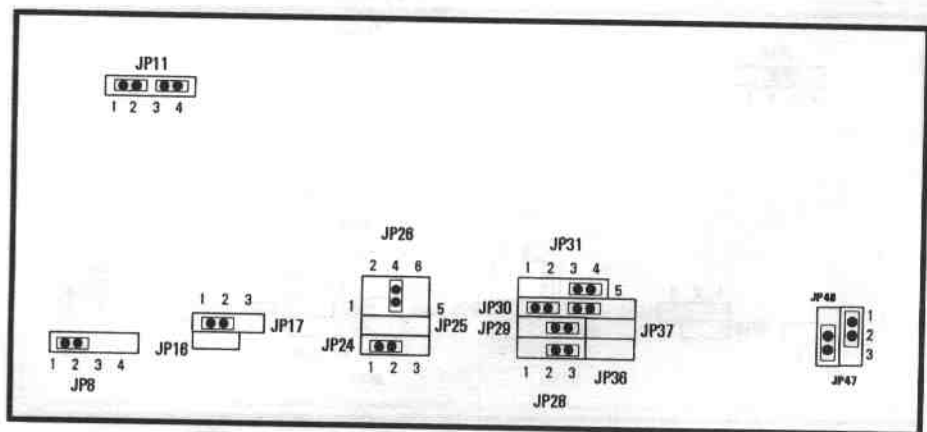
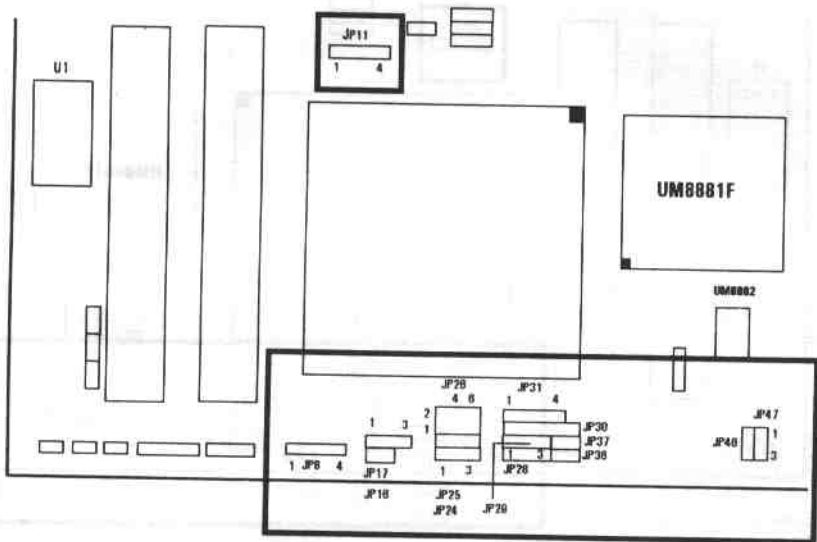
P24T CPU TYPE



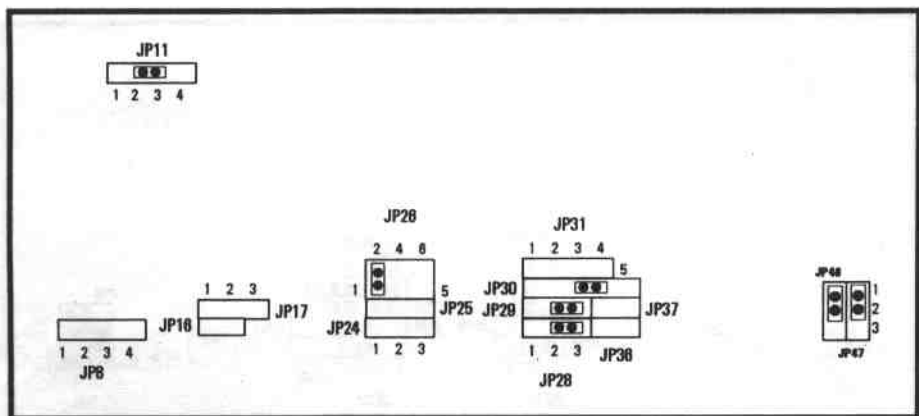
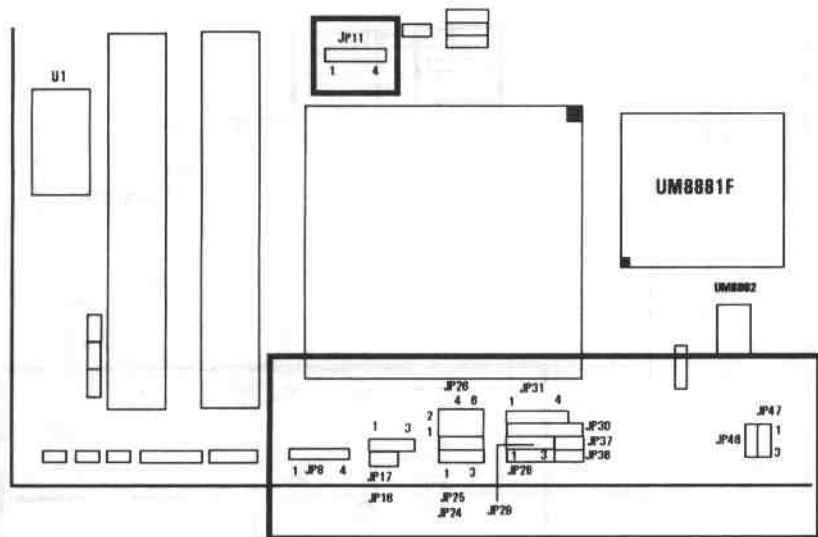
CX486S CPU TYPE



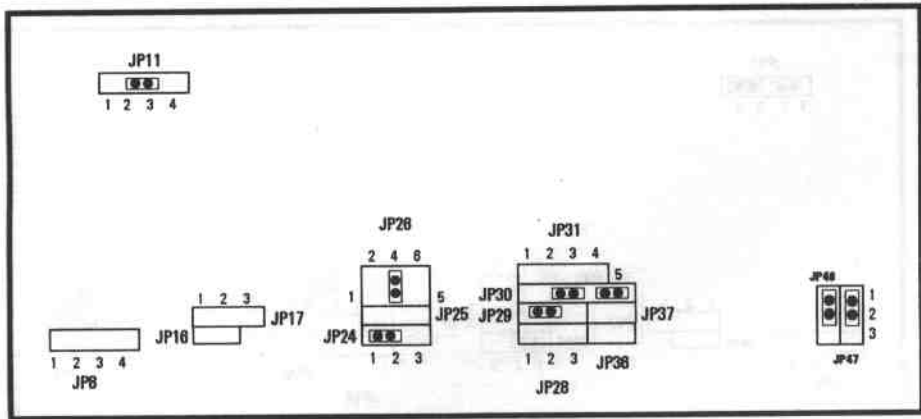
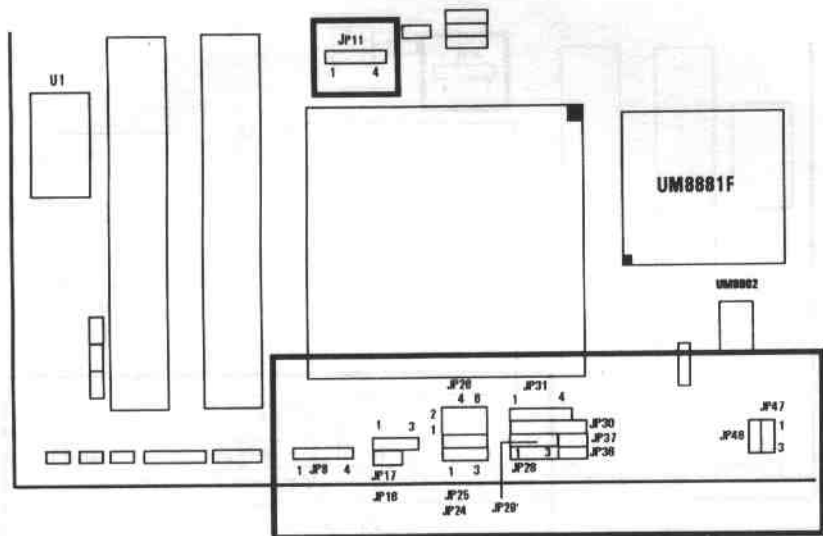
CX486DX CPU TYPE



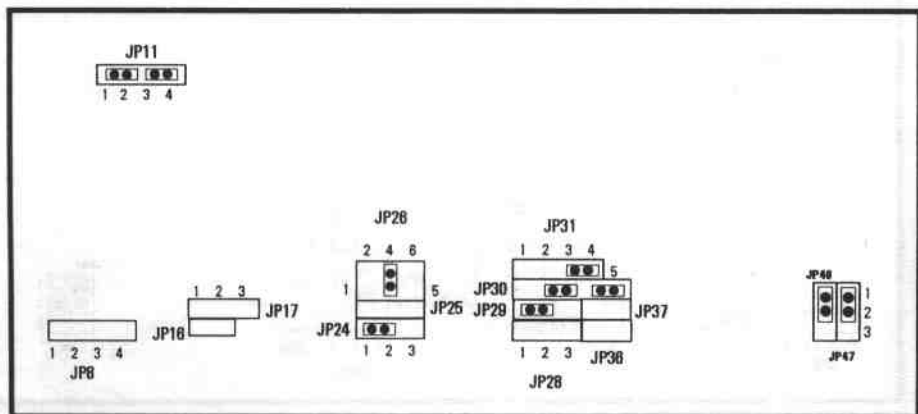
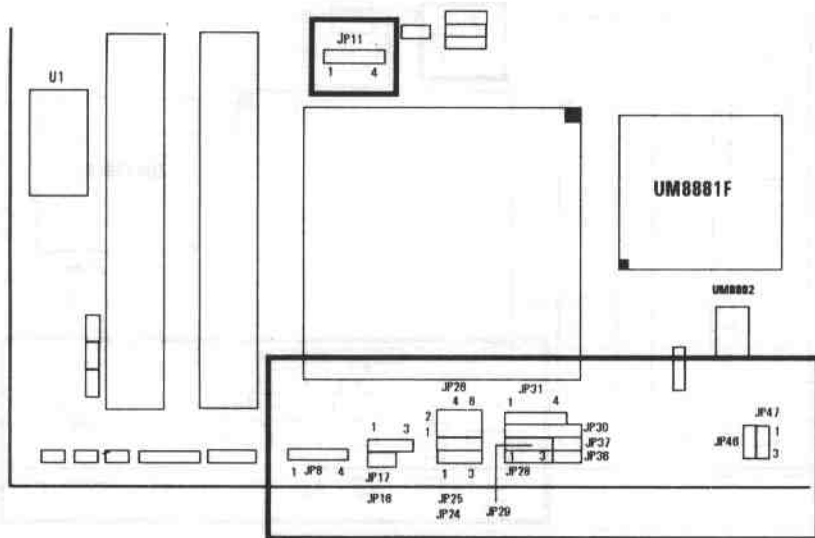
UMC486 CPU TYPE



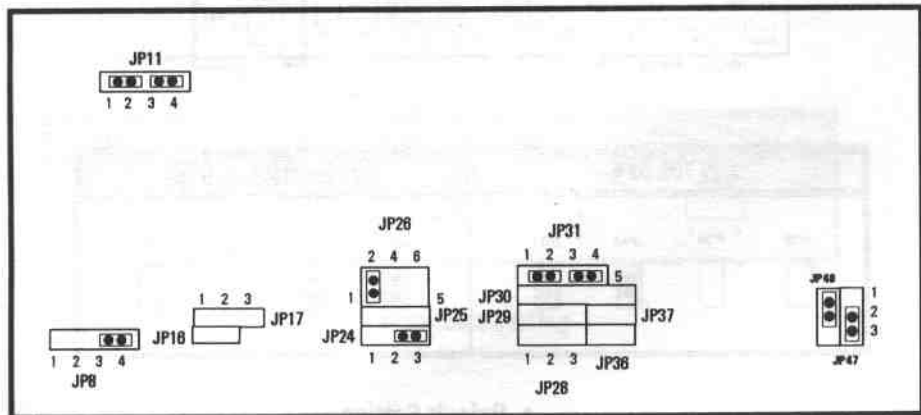
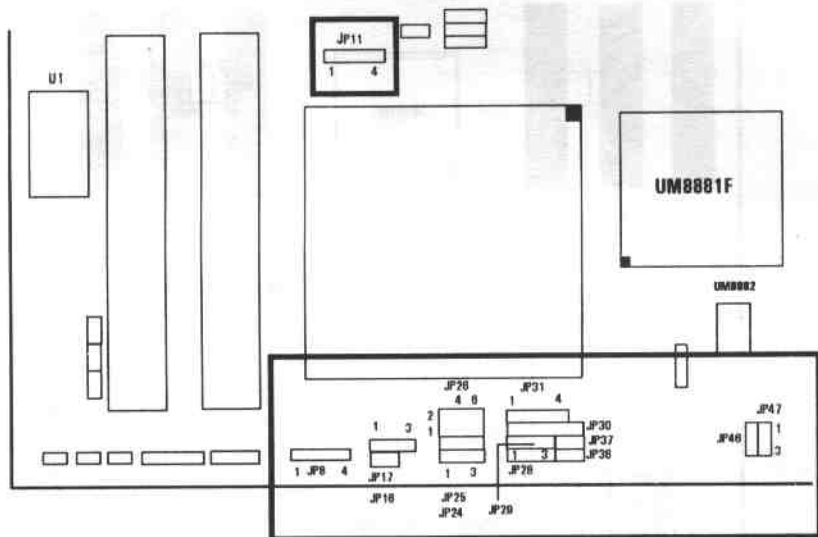
INTEL 486SX ENCHANCE CPU TYPE



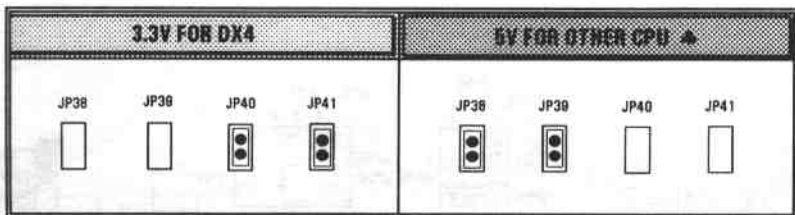
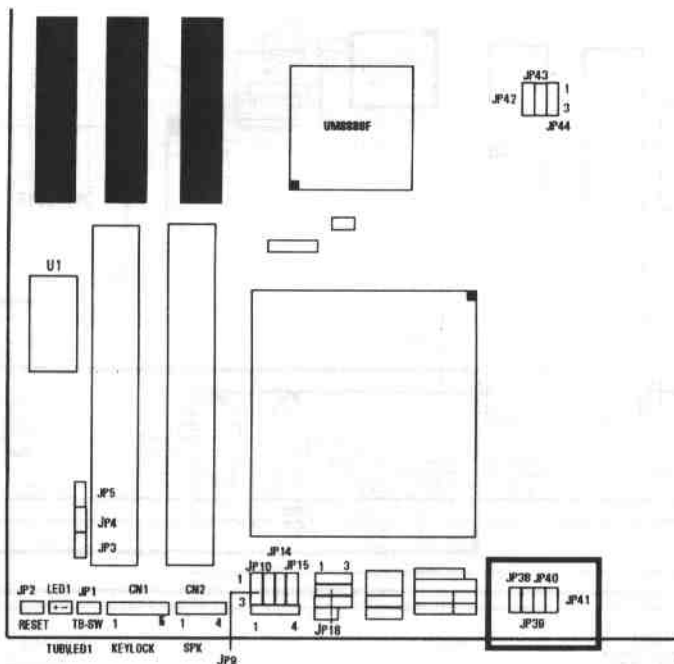
INTEL 486DX/DX2 ENCHANCE CPU TYPE



AM486DXL CPU TYPE

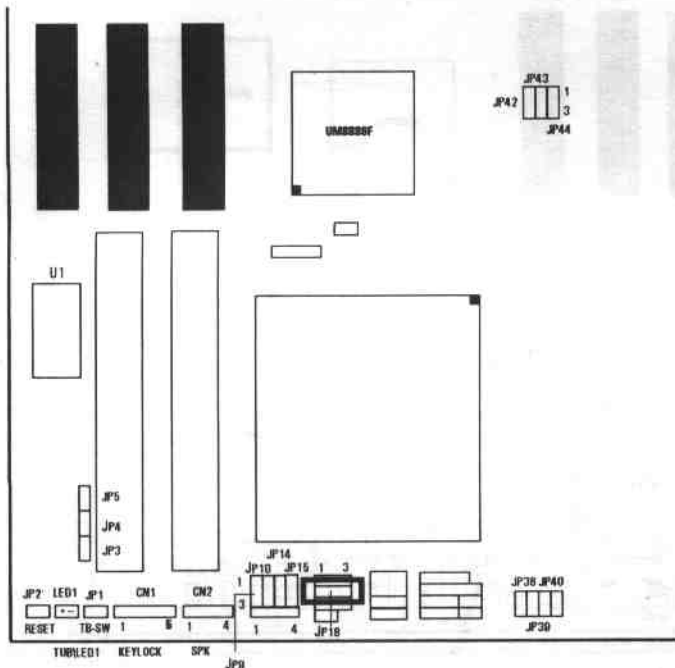


CPU POWER VOLTAGE



♣ Default Setting

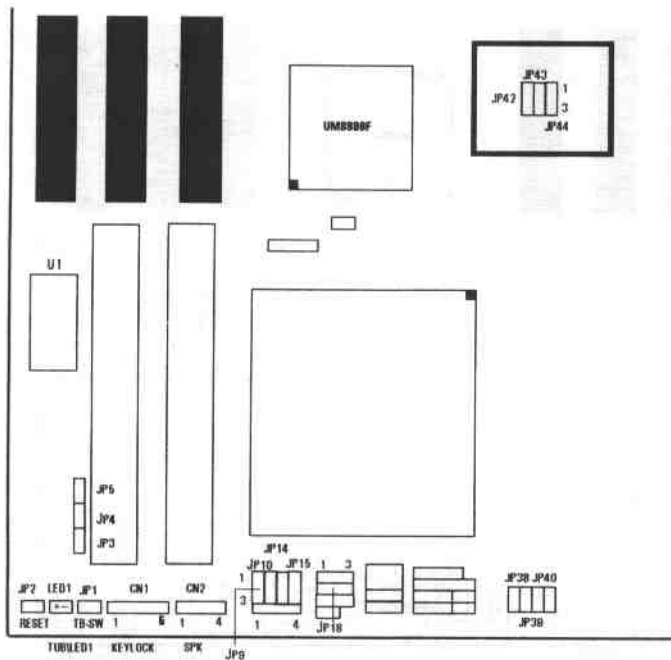
INTEL P24C (DX4) CPU CLOCK



DX4 CPU CLOCK 2×	DX4 CPU CLOCK 2.5×	DX4 CPU CLOCK 3× ↗
<p>JP18</p> <p>1 2 3</p>	<p>JP18</p> <p>1 2 3</p>	<p>JP18</p> <p>1 2 3</p>

↗ Default Setting

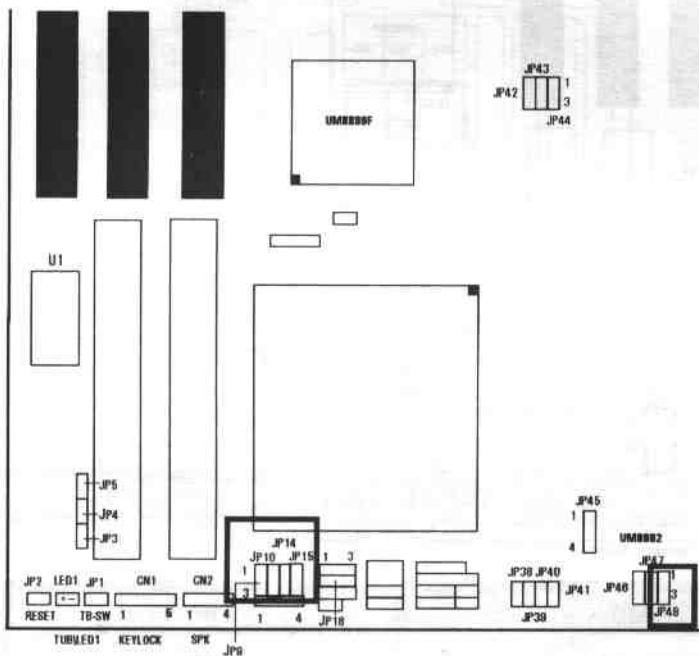
FREQUENCY SETTING



DX25/DX2-50MHz			DX-33/DX2-60MHz ↗			DX-40MHz			DX-50MHz		
JP42	JP43	JP44	JP42	JP43	JP44	JP42	JP43	JP44	JP42	JP43	JP44
1 ● 2 ● 3 ●	1 ● 2 ● 3 ●	1 ● 2 ● 3 ●	1 ● 2 ● 3 ●	1 ● 2 ● 3 ●	1 ● 2 ● 3 ●	1 ● 2 ● 3 ●	1 ● 2 ● 3 ●	1 ● 2 ● 3 ●	1 ● 2 ● 3 ●	1 ● 2 ● 3 ●	1 ● 2 ● 3 ●

↗ Default Setting

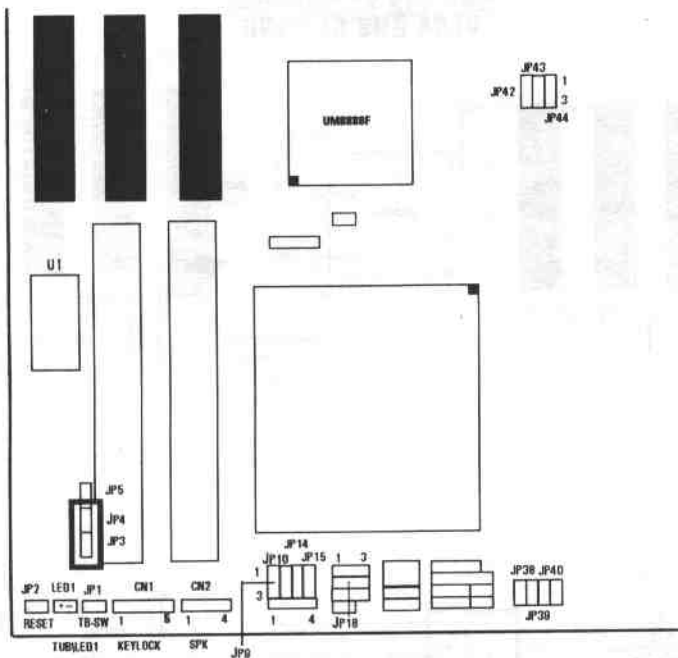
VESA BUS SETTING




SLAVE (PARITY ENABLE)					MASTER (PARITY DISABLE) *				
JP9	JP10	JP14	JP15	JP48	JP9	JP10	JP14	JP15	JP48


* Default Setting

VESA BUS WAIT STATE SETTING



0 WAIT 	1 WAIT
JP4 <input type="checkbox"/>	JP4 <input checked="" type="checkbox"/>

VL BUS CLOCK SETTING

<= 33MHz 	> 33MHz
JP3 <input type="checkbox"/>	JP3 <input checked="" type="checkbox"/>

 Default Setting

SERIAL PORT (COM1)

COM3 (3E8H)	DISABLED	COM1 (3F8H) ➔
<p>JP49</p> <p>1 13 2 14 3 15 4 16 5 17 6 18 12</p>	<p>JP49</p> <p>1 13 2 14 3 15 4 16 5 17 6 18 12</p>	<p>JP49</p> <p>1 13 2 14 3 15 4 16 5 17 6 18 12</p>

SERIAL PORT (COM2)

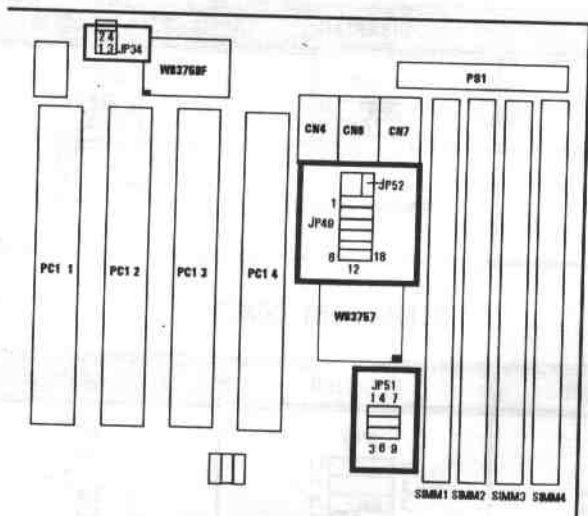
COM4 (2E8H)	DISABLED	COM2 (2F8H) ➔
<p>JP49</p> <p>1 13 2 14 3 15 4 16 5 17 6 18 12</p>	<p>JP49</p> <p>1 13 2 14 3 15 4 16 5 17 6 18 12</p>	<p>JP49</p> <p>1 13 2 14 3 15 4 16 5 17 6 18 12</p>

PRINTER PORT

LPT2 (278H)	LPT3 (3BCH)	DISABLED	LPT1 (378H) ➔
<p>JP49</p> <p>1 13 2 14 3 15 4 16 5 17 6 18 12</p>	<p>JP49</p> <p>1 13 2 14 3 15 4 16 5 17 6 18 12</p>	<p>JP49</p> <p>1 13 2 14 3 15 4 16 5 17 6 18 12</p>	<p>JP49</p> <p>1 13 2 14 3 15 4 16 5 17 6 18 12</p>

➔ Default Setting

FLOPPY SETTING




DISABLED	ENABLED ↗
<p>JP51</p> <p>1 4 7 3 8 9</p>	<p>JP51</p> <p>1 4 7 3 8 9</p>

PRINTER SETTING (CN7)

IRQ7 ↗	IRQ6
<p>JP34</p> <p>2 4 1 3</p>	<p>JP34</p> <p>2 4 1 3</p>

↗ Default Setting

PRINTER PORT (CN7)

PRINTER AS USB PORT 	PRINTER AS G/P PORT
JP52 <input type="checkbox"/>	JP52 <input checked="" type="checkbox"/>

 **Default Setting**