

# **SiS 85C496/497 486 PCI MB.**

**SS486 Rev. P2C**

***User's Manual***

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# Chapter 1 Introduction

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## SYSTEM OVERVIEW

The SS486 Rev.P2 Cache system board is 1/2 Baby AT-sized, fully PC/AT compatible and offers outstanding performance and features.

With 128K/256K/512K cache memory on board, this system is really a high speed machine that is suited for building advanced personal computers or workstations.

The SS486 Rev.P2 Cache system board is designed with the SiS 85C496 / 85C497 chipset and LG Prime 3B fast I/O which are highly integrated. With this chipset, there are only a few discrete devices required, which allows 2 memory banks to be placed on the board. The size of the memory can be scaled from 1MB upto 128 MB.

## FEATURES

The SS486 Rev.P2 Cache system board supports (or includes) the following features :

### **CPU Function**

- \* Support Intel, AMD, Cyrix 486SX/DX/DX2/DX4, P24D, P24T, 5X86 and X5 CPU

### **Chipset**

- \* SiS 85C496/85C497 chipset and LG Prime 3B fast I/O

### **CACHE**

- \* Support 128K/256K/512K 2nd Level CACHE,  
Using 32Kx8/64Kx8/128Kx8 Asynchronous SRAM

### **Memory**

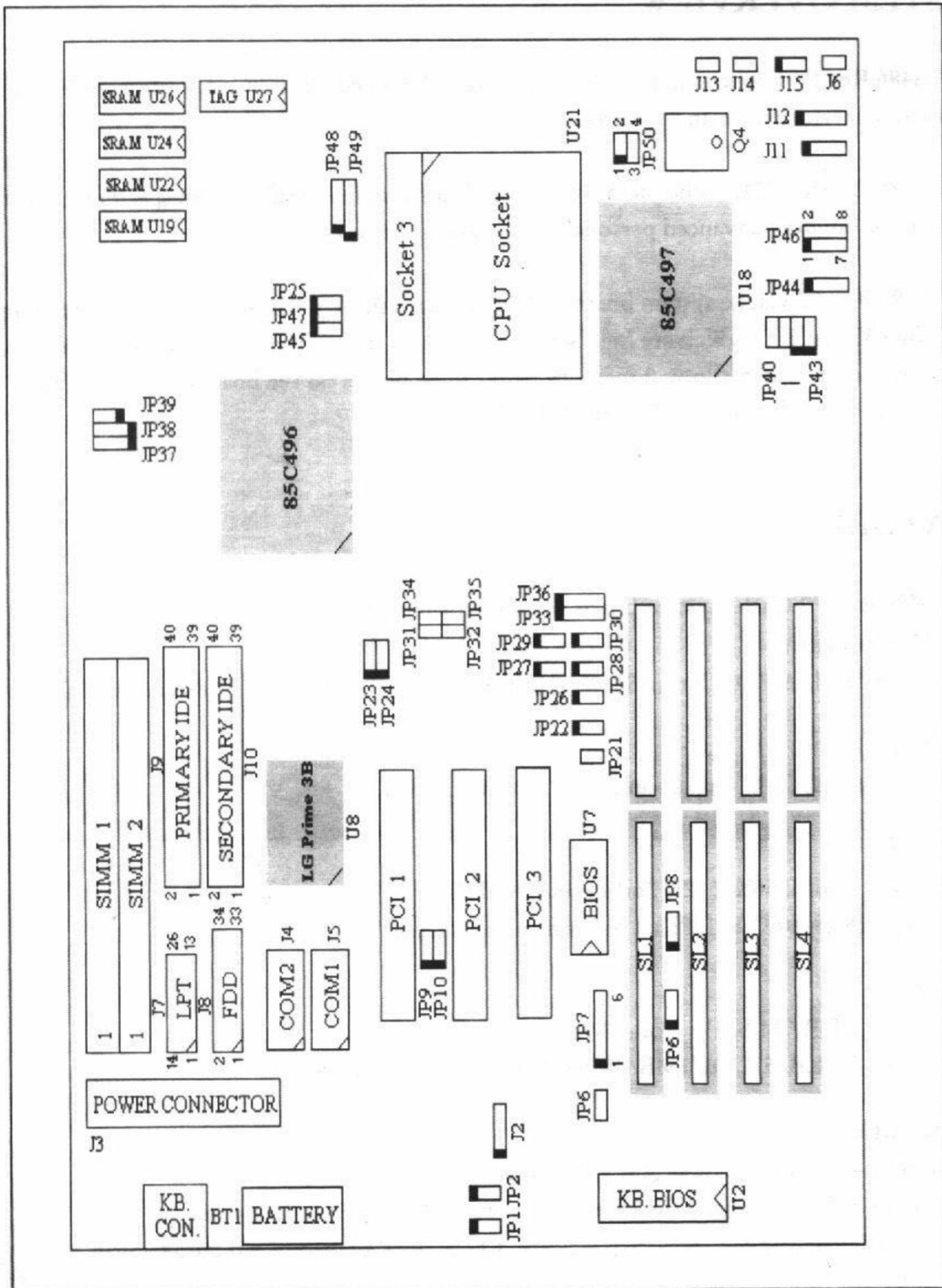
- \* Support 2 DRAM banks from 1MB upto 128MB.
- \* Support 256KB/512KB/1MB/4MB/16MB fast page mode SIMM

### **Expansinos**

- \* Support 4 16-Bit ISA Slots and 3 PCI Master Slots
- \* Build-in 2 PCI Enhanced IDE Ports, support PIO Mode 0, 1, 2, 3, 4 Hard Drive
- \* Build-in 2 High-Speed 16550 Serial Ports, 1 ECP/EPP bi-directional Parallel port,  
1 2.88 MB Floppy port

# Chapter 2 System Board Layout

PLACEMENT of the SS486 Rev.P2C MB.



## Chapter 3 Hardware Configuration

Before the system is ready to operate, the hardware must be configured to allow for various functions within the system. To configure the SS486 Rev.P2 Cache system board is a simple task, only a few jumpers, connectors and sockets need to be selected. Please refer to system board layout in Chapter 2 for the locations.

### DRAM SIMM SOCKETS

The SS486 Rev.P2 Cache system board will support 2 DRAM banks, Bank 0, and Bank 1 in SIMM sockets, uses 72-pin SIMM : DRAM type can be 256K, 1M, 4M or 16M by 32/36 bits Fast Page Mode and faster than 80 ns.

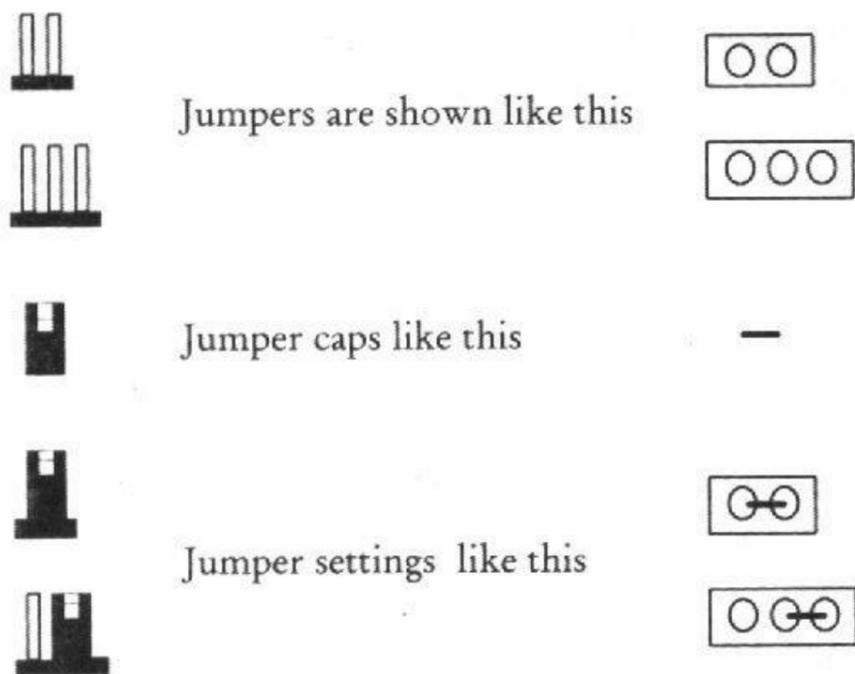
With the use of 256K, 1M, 4M DRAM modules, 1M and upto 32M of local memory can be attained. The installation of DRAM SIMMs is "Table-free", which allows the SIMMs be installed into any slot location and any combinations.

### JUMPERS AND CONNECTORS

On the mainboard, the setting options for each jumper are printed on the board with a stylized bird's-eye view of which pins to connect for each setting. For example, if a jumper has three pins, connecting, or 'shorting', the first and second pins creates one setting and shorting the second and third pins creates another. The same jumper diagrams are used in the manual. The jumpers are always shown from the same point of view as shown in the whole-board diagram in this chapter.

The figure below shows what the manual diagrams look like and what they represent.

## Jumper Diagrams



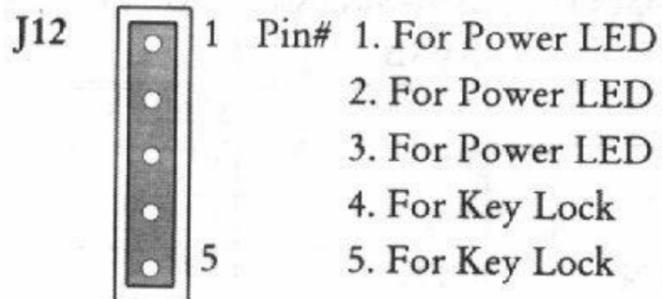
## JUMPER SETTINGS

### JP50 3.3V or 5V CPU Voltage Selection

|         | **3.3V CPU Voltage   | 5V CPU Voltage   |
|---------|--|--|
| Diagram | <p>Q4   U18</p> <p>4  3</p> <p>2  1</p> <p>JP50</p> <p>U21  CPU Socket</p> | <p>Q4   U18</p> <p>4  3</p> <p>2  1</p> <p>JP50</p> <p>U21  CPU Socket</p> |

Note : \*\* is Default Setting.

**J12 CASE Front Panel Key Lock and Power LED**



**CPU Type Configuration**

*(A) Intel 486 CPU Type Selection*

|      | 486SX | 486DX/DX2/DX4 | P24D     | Pentium Over Drive<br>P24T |
|------|-------|---------------|----------|----------------------------|
| JP22 | 2-3   | 2-3           | 2-3      | 2-3                        |
| JP27 | 1-2   | 1-2           | 2-3      | OPEN                       |
| JP28 | OPEN  | OPEN          | OPEN     | 1-2                        |
| JP29 | OPEN  | OPEN          | 1-2      | 1-2                        |
| JP30 | OPEN  | 2-3           | 2-3      | 1-2                        |
| JP33 | 4-5   | 4-5           | 4-5      | 1-2                        |
| JP36 | 4-5   | 4-5           | 1-2      | 3-4                        |
| JP41 | SHORT | SHORT         | SHORT    | SHORT                      |
| JP44 | 2-3   | 1-2, 3-4      | 1-2, 3-4 | 1-2, 3-4                   |
| JP48 | 3-4   | 3-4           | 1-2, 3-4 | 3-4                        |

**Note :** 1. JP26 P24T Internal CACHE Write-Back or Write-Through Selection

| JP26 | CACHE Mode    |
|------|---------------|
| 1-2  | Write-Back    |
| 2-3  | Write-Through |

2. JP43 P24D Internal CACHE Write-Back or Write-Through Selection

| JP43 | CACHE Mode    |
|------|---------------|
| 1-2  | Write-Back    |
| 2-3  | Write-Through |

*(B) AMD 486 CPU Type Selection*

|      | Am486DX/DX2<br>V8T/NV8T | Am486DX4<br>NV8T | Am486DX2<br>SV8B | Am486DX4<br>SV8B | Am5x86-P75-133/160 |
|------|-------------------------|------------------|------------------|------------------|--------------------|
| JP21 | OPEN                    | OPEN             | SHORT            | OPEN             | SHORT              |
| JP22 | OPEN                    | OPEN             | 2-3              | 2-3              | 2-3                |
| JP27 | OPEN                    | OPEN             | 2-3              | 2-3              | 2-3                |
| JP28 | OPEN                    | OPEN             | OPEN             | OPEN             | OPEN               |
| JP29 | OPEN                    | OPEN             | 1-2              | 1-2              | 1-2                |
| JP30 | 2-3                     | 2-3              | 2-3              | 2-3              | 2-3                |
| JP33 | OPEN                    | OPEN             | 4-5              | 4-5              | 4-5                |
| JP36 | 4-5                     | 4-5              | 1-2              | 1-2              | 1-2                |
| JP41 | OPEN                    | OPEN             | SHORT            | SHORT            | SHORT              |
| JP43 | 2-3                     | 1-2              | OPEN             | OPEN             | OPEN               |
| JP44 | 1-2, 3-4                | 1-2, 3-4         | 1-2, 3-4         | 1-2, 3-4         | 1-2, 3-4           |
| JP48 | OPEN                    | OPEN             | 1-2, 3-4         | 1-2, 3-4         | 1-2, 3-4           |

Note : JP43 Am486DX2/DX4 SV8B, Am5x86-P75 CPU Internal CACHE Write-Back or Write-Through Selection

| JP43 | CACHE Mode    |
|------|---------------|
| 1-2  | Write-Back    |
| 2-3  | Write-Through |

*(C) Cyrix 486 CPU Type Selection*

|      | CX486SX<br>(M6) | CX486DX/DX2<br>(M7) | CX486DX4 | CX5x86   |
|------|-----------------|---------------------|----------|----------|
| JP22 | 1-2             | 1-2                 | 1-2      | 2-3      |
| JP27 | OPEN            | OPEN                | 2-3      | 2-3      |
| JP28 | 2-3             | 2-3                 | 2-3      | OPEN     |
| JP29 | OPEN            | 2-3                 | 2-3      | 1-2      |
| JP30 | OPEN            | 2-3                 | 2-3      | 2-3      |
| JP33 | 2-3             | 2-3                 | 2-3      | 4-5      |
| JP36 | 4-5             | 4-5                 | 4-5      | 4-5      |
| JP41 | SHORT           | SHORT               | SHORT    | SHORT    |
| JP44 | 2-3             | 1-2, 3-4            | 1-2, 3-4 | 1-2, 3-4 |
| JP48 | 2-3             | 2-3                 | 2-3      | 1-2, 3-4 |

### CACHE Memory Configuration

The corresponding bank to part identification are as follow :

Data SRAM -- U19, U22, U24, U26

Tag -- U27

|              | 128 KB | 256 KB | 512 KB |
|--------------|--------|--------|--------|
| JP25         | 1-2    | 2-3    | 2-3    |
| JP45         | 1-2    | 1-2    | 2-3    |
| JP47         | 1-2    | 2-3    | 1-2    |
| SRAM<br>TYPE | 32K*8  | 64K*8  | 128K*8 |
| TAG<br>RAM   | 8K*8   | 32K*8  | 32K*8  |

### CPU Clock Frequency Selection

|             | 25 MHz  | **33 MHz  | 40 MHz   | 50 MHz   |
|-------------|---|---|--|----------|
| CPU<br>TYPE | 486SX-25<br>486DX2-50<br>P24T-63<br>486DX4-75 | 486SX/DX-33<br>486DX4-100<br>486DX2-66<br>P24T-83<br>5X86-100<br>Am5x86-P75-133 | 486SX/DX-40<br>486DX2-80<br>486DX4-120<br>5X86-120<br>Am5x86-P75-160 | 486DX-50 |
| JP23        | 1-2   | 1-2   | 1-2  | 2-3      |
| JP32        | OPEN  | SHORT   | OPEN   | SHORT    |
| JP35        | OPEN  | SHORT   | SHORT  | OPEN     |

### Parallel Port Function Selection

| JP9 | JP10 | Parallel Port Function |
|-----|------|------------------------|
| 1-2 | 1-2  | **Bidirection          |
| 2-3 | 1-2  | EPP                    |
| 1-2 | 2-3  | ECP                    |
| 2-3 | 2-3  | Disable Parallel Port  |

**Note :** \*\* is Default Setting.

**Parallel Port DRQ & DACK Selection**

| JP6   | DRQ Select  |
|-------|-------------|
| 1-2   | DRQ 3       |
| **2-3 | DRQ 1       |
| JP8   | DACK Select |
| 1-2   | DACK 3      |
| **2-3 | DACK 1      |

**Others**

| Jumper   | Setting | Function                           |
|----------|---------|------------------------------------|
| J1       |         | Keyboard Connector                 |
| J2       |         | 4.5V External Battery Connector    |
| J3       |         | Power Supply Connector             |
| J5       |         | COM1 Serial Port                   |
| J4       |         | COM2 Serial Port                   |
| J7       |         | Parallel Port                      |
| J8       |         | Floppy Disk Port                   |
| J9       |         | Primary IDE Port                   |
| J10      |         | Secondary IDE Connector            |
| JP38     |         | Primary IDE LED Connector          |
| JP37     |         | Secondary IDE LED Connector        |
| JP1, JP2 | **1-2   | Normal, Keep RTC CMOS Setting      |
|          | 2-3     | Discharge RTC CMOS Setting         |
| JP7      | 1-2     | 12V Flash Memory BIOS              |
|          | **2-3   | 5V Flash Memory BIOS or EPROM BIOS |
| J6       |         | Reset Switch                       |
| J11      |         | Speake Connector                   |
| J13      |         | SMI Switch                         |
| J14      |         | Turbo LED                          |
| J15      | 1-2     | De-Turbo Mode                      |
|          | **2-3   | Turbo Mode                         |

**Note :** \*\* is Default Setting.

## Chapter 4 Specifications

|                         |   |
|-------------------------|---|
| <b>CPU</b>              | Intel, AMD, Cyrix 486SX/DX/DX2/DX4, P24D, P24T, 5X86 and X5 CPU             |
| <b>WORD SIZE</b>        |   |
| * Data Path             | 16-bit, 32-bit  |
| * Physical Addressing   | 20 address lines in real mode<br>26 address lines in protected mode         |
| <b>CLOCK RATE</b>       | 25/33/40/50 MHz   |
| <b>MEMORY</b>           |   |
| * EPROM                 | 1024K   |
| * DRAM                  | up to 128MB. (SIMM)   |
| * SRAM                  | 128K/256K/512K (DIP)  |
| <b>DIMENSION</b>        |   |
| * Length & Width        | 8.67 inches x 8.67 inches (22cm x 22cm)                                     |
| * Height                | 3/4 inches with components mounted, but without expansion boards and cables |
| * PCB Thickness         | 4 layers, 0.05 inches normal  |
| * Weight                | 517 g (18.27 ounces)  |
| <b>ENVIRONMENT</b>      |   |
| * Operating Temperature | 10°C to 40 °C, (50°F to 104°F)  |
| * Required Airflow      | 50 linear feet per minute across 80486                                      |
| * Storage Temperature   | -40°C to 70°C, (-40°F to 158°F)   |
| * Humidity              | 0 to 90% noncondensing  |
| * Altitude              | 0 to 10,000 feet  |