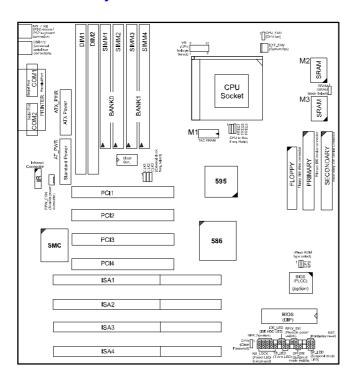# Installation Procedures

The PA-2011 has several user-adjustable jumpers on the board that allow you to configure your system to suit your requirements. This chapter contains information on the various jumper settings on your mainboard.

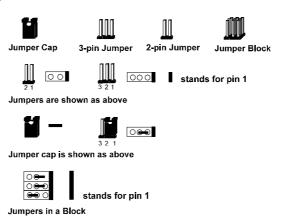To set up your computer, you should follow these installation steps:

■ Step 1 -
    Set system jumpers

■ Step 2 -
    Install System RAM modules

■ Step 3 -
    Install the CPU

■ Step 4 -
    Install expansion cards

■ Step 5 -
    Connect cables and power supply

■ Step 6 -
    Set up BIOS feature (Please read Chapter Three.)
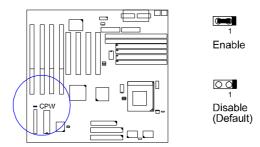
Mainboard Layout

1). Set System Jumpers

Jumpers

Jumpers are used to select the operation modes for your system. Some jumpers on the board have three metal pins with each pin representing a different function. To set a jumper, a black cap containing metal contacts is placed over the jumper pins according to the required configuration. A jumper is said to be shorted when the black cap has been placed on one or two of its pins. The types of jumpers used in this manual are shown below:
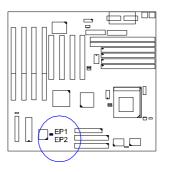
Jumper Cap   **3-pin Jumper**   **2-pin Jumper**   **Jumper Block**

Jumpers are shown as above   ∎ **stands for pin 1**

Jumper cap is shown as above

Jumpers in a Block   ∎ **stands for pin 1**

NOTE : Users are not encouraged to change the jumper settings not listed in this manual. Changing the jumper settings improperly may adversely affect system performance.

Clear Password: CPW

This jumper allows you to set the password configuration to Enabled or Disabled. You may need to enable this jumper if you forget your password.

Enable

Disable
(Default)

Flash EPROM Type Selection: EP1, EP2

These two jumpers allow you to configure the Flash EPROM chip

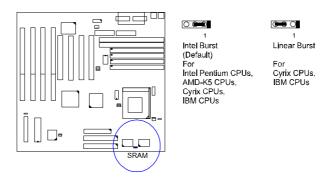| 1M Flash ROM	EP1	EP2
INTEL / MX		
AMD / ATMEL / SST		

2M Flash ROM	EP1	EP2
INTEL / MX		
AMD / ATMEL / SST		

CPU to SRAM Data Transacting Mode Selection: SRAM

This jumper allows you to select the CPU to SRAM data read/write mode.

2). Install System RAM Modules

DRAM and SDRAM

The working space of the computer is the Random Access Memory (RAM). The system cannot act upon data unless it is loaded into RAM. When more memory is added, the working memory of the computer is larger, thereby increasing total performance.

The PA-2011's RAM is comprised of four industry standard 72-pin Single In-line Memory Modules (SIMMs) and two 168-pin Dual In-line Memory Modules (DIMMs). Each SIMM socket supports from 4 to 64MB FPM (Fast Page Mode) and high-speed EDO (Extended Data Out) DRAM. Each DIMM socket is able to support up to 64MB EDO DRAM or lightning-fast SDRAM.

SDRAM is an advanced new memory technology that boosts overall system performance with its ability to synchronize all operations with the processor clock signal. This makes the implementation of control interfaces easier, and speeds up column access time. SDRAM features an on-chip burst counter that can be utilized to increment column addresses for very fast burst access, which means that SDRAM allows new memory access to be initiated before the preceding access has been finished.

Before making DRAM upgrades you should verify the type and speed of the RAM currently installed from your dealer. Installing mixtures of RAM types other than those described in this manual will have unpredictable results.

RAM Module Configuration

SIMMs and DIMMs in Bank 0 and Bank 1 can be installed in many combinations. Some of them are listed in the following table.

(Unit : MB)

TOTAL MEMORY	SIMM 1 & 2 (Bank 0)	SIMM 3 & 4 (Bank 1)	DIM1 (Bank 0)	DIM2 (Bank 1)
8	4 & 4			
			8	
16	8 & 8			
			16	
32	16 & 16			
			32	
64	32 & 32			
			64*	
128	64 & 64			
			64*	64*
256	64 & 64	64 & 64		
512	128* & 128*	128* & 128*		

NOTE :
1. * A RAM module of this size was not available for testing at press time.
2. DIM1 and DIM2 only support 3.3V (unbuffered) EDO and SDRAM modules.
3. It is recommended that SIMMs and DIMMs are not installed at the same time on this mainboard to avoid unexpected failure.
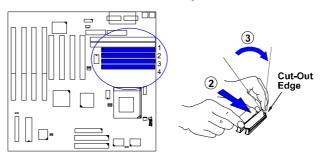4. DIM2 and SIMM 1&2 are shared. That is, It is not allowed to install RAM modules on DIM2 and SIMM 1 &2 at the same time.

Install SIMMs

Complete the following procedures to install SIMMs:

CAUTION : Always turn the system power off before installing or removing any device; and see "Handling Precautions" at the start of this manual.

1. Locate the SIMM slots on the mainboard. (See figure below.)

NOTE : SIMMs in each bank must be of the same type; and the BIOS automatically configures the memory size.

2. Carefully fit a SIMM at a 45 degree angle into each empty socket to be populated. All the SIMMs must face the same direction.

3. Swing each SIMM into its upright, locked position.
   When locking a SIMM in place, push on each end of the SIMM - do not push in the middle, as shown above.
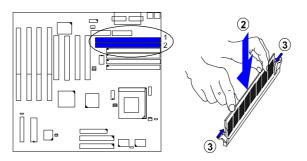
Remove SIMMs

To remove the SIMMs, pull the retaining latch on both ends of the socket and reverse the procedure above.

Install DIMMs

Complete the following procedures to install DIMMs:

1. Locate the DIMM slots on the mainboard. (See figure below.)

2. Install the DIMM straight down into the DIMM slot with both hands.

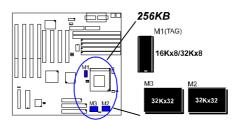3. The clips of the slot will close up to hold the DIMM in place when the DIMM touches the slot's bottom.

Remove DIMMs

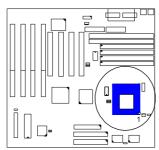Press the clips with both hands to remove the DIMM.

Cache Memory

The PA-2011 comes with onboard 256KB (512KB is optional) synchronous 3V Pipeline Burst SRAMs. Cache memory access is very fast compared to main memory access. The cache holds data for imminent use. Since cache memory is from five to more than ten times faster than main memory, the CPU's access time is reduced, giving you better system performance.

Socket 7 mainboards may implement various types of L2 cache SRAMs. Pipeline Burst SRAM is one of them, delivering the best price performance ratio. They perform much better than asynchronous SRAMs.

3). Install the CPU

The CPU module resides in the Zero Insertion Force (ZIF) socket on the mainboard.

CAUTION :

1. Always turn the system power off before installing or removing any device.
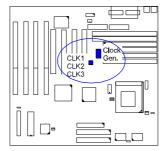**2.** Always observe static electricity precautions.
    See "Handling Precautions" at the start of this manual.
3. Inserting the CPU chip incorrectly may damage the chip.

To install the CPU, do the following:
 1. Lift the lever on the side of the CPU socket.
 2. Handle the chip by its edges and try not to touch any of the pins.
 3. Place the CPU in the socket. The chip has a notch to correctly orientate the chip. Align the notch with pin one of the socket. Pin one is located in the blank triangular area. Do not force the chip. The CPU should slide easily into the socket.
 4. Swing the lever to the down position to lock the CPU in place.
 5. See the following sections for information on the CPU jumpers settings.

CPU External Clock (BUS) Frequency: CLK1, CLK2, CLK3

The table below shows the jumper settings for the different CPU speed configurations.

For IMI Clock Generator

External (CPU/CLK)	CLK1	CLK2	CLK3
75 MHz			
66 MHz			
60 MHz			
55 MHz			

NOTE : There is one of three different types of clock generators onboard, either IMI, ICW, or PhaseLink, for CPU clock jumper settings. Please check your onboard clock generator before you set the CPU jumpers. The settings of ICW and PhaseLink are listed in Appendix B.