

Chapter 2: Installation

Before You Begin

Before you begin to install your P5VP-A+ mainboard, take some precautions to ensure that you avoid the possibility of damage to the product from static electricity. Ensure too that you are installing the mainboard into a suitable case.

Static Electricity

In adverse conditions, static electricity can accumulate and discharge through the integrated circuits and silicon chips on this product. These circuits and chips are sensitive and can be permanently damaged by static discharge.

- ◆ If possible wear a grounding wrist strap clipped to a safely grounded device during the installation.
- ◆ If you don't have a wrist strap, discharge any static by touching the metal case of a safely grounded device before beginning the installation.
- ◆ Leave all components inside their static-proof bags until they are required for the installation procedure.
- ◆ Handle all circuit boards and electronic components carefully. Hold boards by the edges only. Do not flex or stress circuit boards.

Choosing a Case

The P5VP-A+ mainboard has a power connector for an ATX power supply.

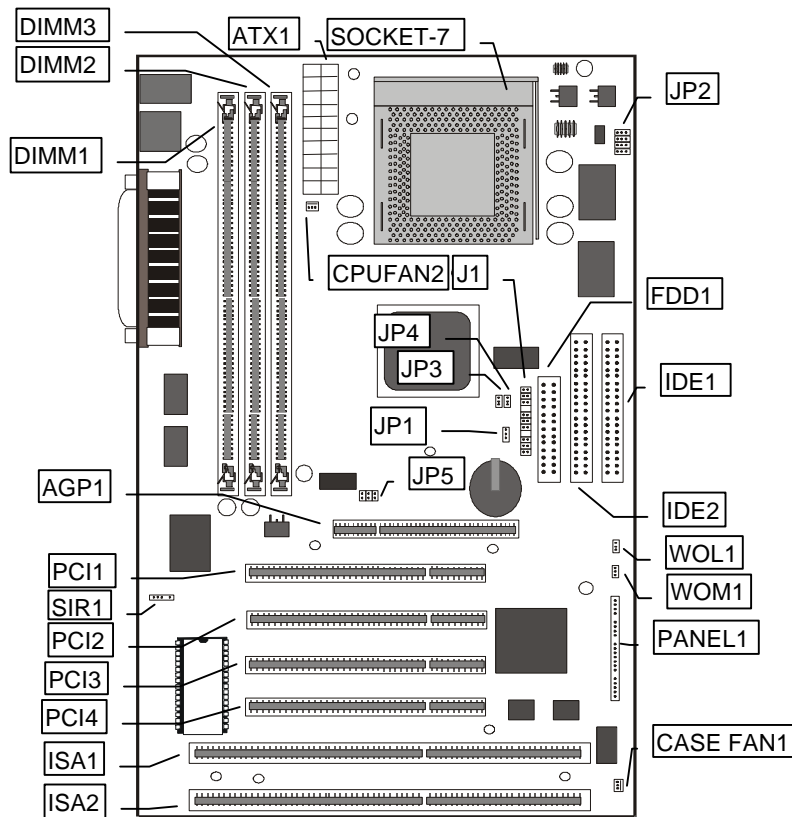
Some features on the mainboard are implemented by cabling connectors on the mainboard to indicators and switches on the system case. Ensure that your case supports all the features required.

The P5VP-A+ mainboard can support one or two floppy diskette drives and four enhanced IDE drives. Ensure that your case has sufficient power and space for all the drives that you intend to install.

The mainboard has a full set of I/O ports arranged in a standard ATX two-tier format. Ensure that your case has a suitable I/O template for the I/O ports.

Mainboard Guide

Use the following illustration and key to identify the components on your mainboard.

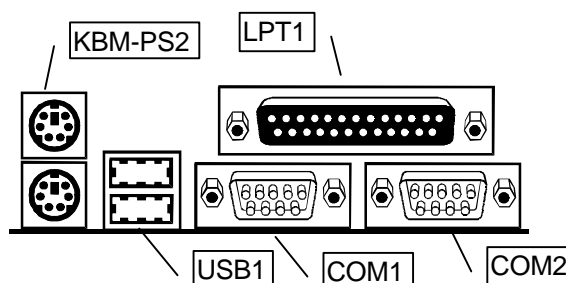


Key to Components

Component	Description
ISA2, ISA1	2 x 8/16-bit expansion slots
PCI1,2,3,4	4 x 32-bit expansion slots
SOCKET-7	Socket for Processor
DIMM1,2,3	3 x slots for 168-pin memory modules
AGP1	Slot for AGP graphics adapter
CASE FAN1	Power for case-mounted cooling fan
CPU-FAN2	Power for processor-mounted cooling fan
ATX1	Connector for ATX power supply
PANEL1	Connectors for case switches and indicators

FDD1	Connector for Floppy disk drives
IDE1	Primary IDE channel
IDE2	Secondary IDE channel
SIR1	Connector for Standard Infrared option
WOL1	LAN wake up connector
WOM1	Modem wake up connector
J1	System bus multiplier for CPU clock
JP1	Clear CMOS memory jumper
JP2	Set CPU core voltage jumper
JP3	Clock setting for AGP, PCI buses
JP4	Clock setting for AGP, PCI buses
JP5	Set CPU I/O voltage

Side View of the I/O Ports



Component	Description
LPT1	Parallel Port (Bidirectional, EPP, ECP)
KBM-PS2	Upper PS/2 port for mouse, lower PS/2 port for keyboard
USB1	Two Universal Serial Bus ports
COM1	Serial port for COM1 or COM 3
COM2	Serial port for COM2 or COM4

Preparing the Mainboard

Prepare the main board by installing the Pentium or Pentium-compatible processor and then installing memory modules. This board supports processors that run from 100MHz through to over 300 Mhz. Finally, review all the important jumper settings to ensure that the board is configured correctly.

Install the Processor

1. Locate the zero insertion force (ZIF) socket-7 for the processor. On the socket and on the processor, identify the pin 1 corner. You can identify the pin 1 corner by noting that in the rectangular matrix of pins and holes on the socket and processor, one pin and one hole is absent on the pin 1 corner.

2. Push the socket locking lever away from the socket to unhook it. Swing the lever into the upright position.
3. Insert the processor into the socket taking care that you have matched the pin 1 corners. No force is required, and the processor should seat smoothly into the socket.
4. Swing the locking lever down and hook it under the latch on the side of the socket to lock it in place.
5. If your processor includes a built-in cooling fan, connect the cable from the cooling fan to the CPU cooling fan power supply connector on the mainboard CPU-FAN2.

Install the Memory Modules

For this mainboard, you must use 168-pin Dual In-line Memory Modules (DIMMs) which are installed with SDRAM (Synchronous Dynamic Random Access Memory). This mainboard supports 3.3 volt DRAMs. The board supports memory which has ECC (Error Correction Code).

You can install one, two or three modules, and each module can have a capacity of up to 256 MB. All the memory modules that you install must be of the same kind. If you only install one memory module, install it in DIMM socket 1. If you install two modules, install them in DIMM sockets 1 and 2.

Installing DIMMs

1. The DIMM sockets are keyed with notches and the DIMMs are keyed with cut-outs so that they can only be installed correctly. Check that the cut-outs on the DIMM edge connector matches the notches in the SDRAM socket.
2. Push the latches on each side of the SDRAM socket down.
3. Install the DIMM into the socket and press it carefully but firmly down so that it seats correctly. The latches at either side of the socket will be levered upwards and latch on the edges of the DIMM when it is installed correctly.

Check all the Jumper Settings

Check all the mainboard jumpers to ensure that the board is configured correctly according to the speed and timing of your processor, the VGA sub-system you are using, and so on.

A Note on Jumpers

A jumper consists of two or more pins mounted on the mainboard. Some jumpers might be arranged in a series with each pair of pins numbered differently. Jumpers are used to change the electronic circuits on the mainboard. When a jumper cap is placed on two jumper pins, the pins are SHORT. If the jumper cap is removed (or placed on just a single pin) the pins are OPEN.

CPU Setting

To install a CPU on this mainboard you need to set up the board for a specific CPU by doing the following:

- ☐ Set the External Clock Speed
- ☐ Set the Clock Multiplier Factor
- ☐ Set the CPU Voltage

You configure the CPU settings on the board. In order to do this, you will need to know some information about the CPU you plan to use. This should be provided by the CPU vendor. You'll need the following information:

- ☐ CPU Internal Clock Speed
- ☐ CPU Voltage

The internal clock speed is the speed the CPU operates at to process data and is the one used by CPU manufacturers to indicate the speed of the chip. The CPU also has an external clock speed which is the speed at which it interacts with the external components.

CPU voltage may either be the same internally and externally or it may be split, depending on the CPU design. Some processors use one voltage for the core (Vcore) and another for input/output (Vio).

To configure the board for a CPU's internal clock speed, you need to set the external clock speed, sometimes referred to as the bus speed, and the clock multiplier, so that the result is the internal clock speed of the CPU you are installing.

For example, if you have a system bus speed of 33 MHz and you want to run a CPU with an internal clock speed of 200 MHz, you need to set a clock multiplier of 6.

$$33\text{MHz (External Clock)} \times 6 \text{ (Clock Multiplier)} = 200\text{MHz}$$

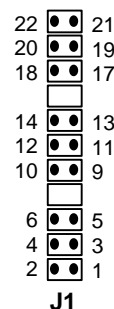
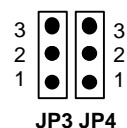
or an effective setting of 200MHz

A table of CPU settings is provided at the end of this manual. Consult the table if you are unsure of the settings for your CPU, and you do not have access to the original documentation of the CPU.

Set the System Bus Speed, AGP and PCI clocks: J1, JP3, JP4

These jumpers are used to set the frequencies for the system bus, and also the frequencies for the AGP bus and the PCI bus.

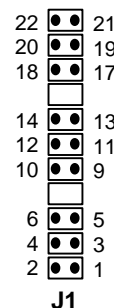
System Bus	AGP Bus	PCI Bus	Short Pins					
			J1			JP3	JP4	
124	83	41	11-13	18-20	19-21	1-2	2-3	
112	75	37	11-13	19-21	20-22	1-2	2-3	
100	66	33	9-11	17-19	18-20	1-2	2-3	
95	64	32	11-13	17-19	18-20	1-2	2-3	
83	66	33	9-11	17-19	20-22	1-2	1-2	
75	75	37	9-11	18-20	19-21	2-3	1-2	
66	66	33	9-11	19-21	20-22	2-3	1-2	



Set Multiplier for CPU Clock (Multiplier x System Bus = CPU Clock): J1

J1 is used to set a multiplier for the system bus. The multiplier times the system bus speed produces the frequency for the CPU internal clock.

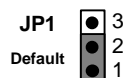
System Bus Multiplier	Short Pins			
X1.5	2-4	1-3	10-12	
X2	4-6	1-3	10-12	
X2.5	4-6	3-5	10-12	
X3	2-4	3-5	10-12	
X3.5	2-4	1-3	10-12	
X4	4-6	1-3	12-14	
X4.5	4-6	3-5	12-14	



Clear CMOS Memory: JP1

This jumper can be used to clear the contents of CMOS memory. Ensure that the jumper cap is placed on pins 1-2. If you ever need to clear the system CMOS memory, you can do this by moving the jumper cap to short pins 2-3 for a few seconds. When you clear the CMOS memory, the system must be turned off and the ATX power supply cable must be disconnected from the ATX power connector on the mainboard.

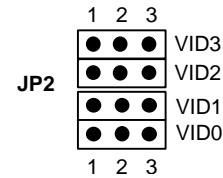
Function	Jumper Cap
Normal Operation	Short Pins 1-2
Clear CMOS memory	Short pins 2-3



Set CPU Core Voltage: JP2

This jumper is used to set the core voltage for the CPU.

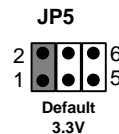
CPU Core Voltage	Short Pins			
	VID0	VID1	VID2	VID3
3.5V	1-2	1-2	1-2	1-2
3.4V	2-3	1-2	1-2	1-2
3.3V	1-2	2-3	1-2	1-2
3.2V	2-3	2-3	1-2	1-2
3.1V	1-2	1-2	2-3	1-2
3.0V	2-3	1-2	2-3	1-2
2.9V	1-2	2-3	2-3	1-2
2.8V	2-3	2-3	2-3	1-2
2.7V	1-2	1-2	1-2	2-3
2.6V	2-3	1-2	1-2	2-3
2.5V	1-2	2-3	1-2	2-3
2.4V	2-3	2-3	1-2	2-3
2.3V	1-2	1-2	2-3	2-3
2.2V	2-3	1-2	2-3	2-3
2.1V	1-2	2-3	2-3	2-3
1.2V	2-3	2-3	2-3	2-3



Set CPU I/O Voltage: JP5

Most processors use an I/O voltage of 3.3V. Some Cyrix processors need an I/O voltage of 3.52. The reserved setting is for testing purposes and cannot be used in normal operation.

Function	Jumper Cap
3.3V I/O Voltage	Short Pins 1-2
3.52V I/O Voltage	Short Pins 3-4
Reserved	Short Pins 5-6



Install the Mainboard in the System Case

Use the screws and mounting brackets supplied with your system case to install the mainboard. Follow the instructions provided by the case manufacturer.

Connect Devices, Switches and Indicators to the Mainboard

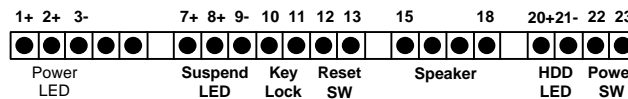
Note: You might not need to carry out every step in the following procedure. It depends on the options you are installing, and the features that are supported by your system case.

Note: Ribbon cables are usually keyed so that they can only be installed correctly on the device connector. If there is no key on a connector, you must manually ensure that the cable is installed correctly. Each connector has the pin-1 side clearly marked. The pin-1 side of each ribbon cable is always marked with a red stripe on the cable.

Internal Connections

1. Locate the floppy diskette drive connector FDD1. Use the ribbon cable to connect the one or two floppy diskettes to the mainboard.
2. Locate the Enhanced IDE connectors IDE1 (primary IDE) and IDE2 (secondary IDE). A single IDE cable is provided with the mainboard. Connect the cable to IDE1. The cable has two connectors for IDE devices. If you connect two devices, you must configure one device as Master, and one device as Slave. See the documentation provided with the devices for information on this. If you need to install more drives, obtain another IDE cable and connect one or two devices to IDE2 following the same procedure as you used with IDE1.
3. Locate the bank of switch and indicator Panel connectors PANEL1. These connectors provide control functions to your system case. Use the illustration and the table below to make the connections.

Function	Pinout
Power Indicator	+1, +2, 3
Green Indicator	+7, +8, 9
Key Lock	10, 11
Reset Switch	12, 13
Speaker	+15, 16, 17, 18
Hard Disk Indicator	+20, 21
Power Switch	+22, 23



4. Locate the power connector ATX1. Connect the power cable harness from the power supply unit to ATX1.
5. Locate the expansion slots ISA1 and ISA2 (for 8/16-bit ISA cards) and PCI 1,2,3,4 (for 32-bit PCI cards). Install any expansion cards you want to add to your system into the appropriate slot and secure the card bracket to the system case.
6. Locate the AGP slot. If you are adding an AGP display adapter to your system, insert the card into the AGP slot.
7. If you have installed an internal modem card, connect the modem to the Wake On Modem connector WOM1.
8. If you have installed a network adapter card, connect the adapter to the Wake On LAN connector WOL1.

9. As an option, you can install your system with a Standard Infrared port. If you install this option, connect the infrared port to the infrared connector SIR1.

***Note:** If you install an infrared port, it must share a COM port assignment with the second external serial port COM2. You can select which port is in use by using the setup utility.*

10. If your system case is installed with a separate cooling fan, you can connect the fan to the cooling fan power connector, CASE FAN2.