

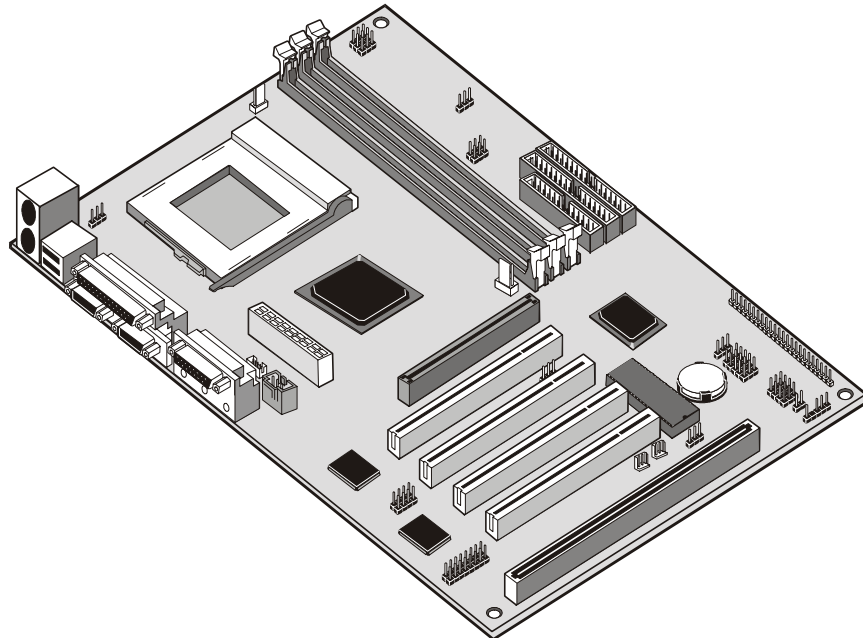
# Chapter 1: Introduction

## Welcome

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Congratulations on purchasing the P6VAP-A+ mainboard. This mainboard features the latest VIA VT82C694X/VT82C596B chipset. The mainboard features a FC-PGA (Plastic Pin Grid Array) processor socket. **This feature means that you can install the mainboard with a PGA Intel Celeron or Cyrix Joshua processor, or an FC-PGA Intel Coppermine processor.**

The P6VAP-A+ is a full-sized ATX mainboard that uses a 4-layer printed circuit board and measures 304mm by 200mm.. The board includes a built-in sound system, 6 expansion slots including an AGP graphics slot, and a full set of I/O ports. Using this mainboard, you can create the exact system you need. The supported processors cover a wide range of price/performance points so that you can build a system for high performance or low cost.



This chapter contains the following information:

- ❑ **About the Manual** explains how the information in this manual is organized
- ❑ **Checklist** comprises a list of the standard and optional components that are shipped with this mainboard
- ❑ **Recommendations** lists some Do's and Don'ts from the manufacturer to help ensure reliability and performance from this product
- ❑ **Features** highlights the functions and components that make this one of the best value mainboards on the market

## About the Manual

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The manual consists of the following chapters:

### ***Introduction***

Use the **Introduction** Chapter to learn about the features of the mainboard, and the checklist of items that are shipped with the package.

### ***Installation***

Use the **Installation** Chapter to learn how to install the mainboard and get your system up and running.

### ***Setup***

Use the **Setup** Chapter to configure the mainboard for optimum performance.

### ***Software***

Use the **Software** Chapter to learn how to use the software drivers and support programs that are provided with this mainboard.

## Checklist

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Compare the contents of your mainboard package with the standard checklist below. If any item is missing or appears damaged, please contact the vendor of your mainboard package.

### ***Standard Items***

- ✓ 1 x P6VAP-A+ Mainboard
- ✓ 1 x Cable/Bracket Pack
  - Diskette drive ribbon cable
  - DMA 66 IDE drive ribbon cable
- ✓ This User's Manual
- ✓ Software Support CD-ROM Disc

### ***Optional Items***

- ◆ V.90 Fax/modem module

## Recommendations

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This mainboard automatically determines the CPU clock frequency and system bus frequency for the kind of processor that you install. You may be able to change these automatic settings by making changes to jumpers on the mainboard, or changing the settings in the system setup utility. We strongly recommend that you do not overclock the mainboard to run processors or other components faster than their rated speed.

Overclocking components can adversely affect the reliability of the system and introduce errors into your system. Overclocking can permanently damage the mainboard by generating excess heat in components that are run beyond the rated limits.

Components on this mainboard can be damaged by discharges of static electricity. Handle the board carefully holding it by the edges. Don't flex or stress the circuit board. Keep the board in its static-proof packing until you are ready to install it. Follow the static guidelines given at the beginning of chapter 2.

## Features

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The key features of this mainboard are the advanced VIA VT82C694X/VT82C596B chipset, and the FC-PGA processor support so that you can install a wide range of Intel Celeron, Cyrix Joshua, or Intel Coppermine processors. You can use this board to develop a low-cost value system, with very comprehensive features.

### ***Support PGA Intel Celeron/Cyrix Joshua and FC-PGA Intel Coppermine Processor***

This mainboard supports three kinds of processors: PGA Intel Celeron and Cyrix PGA Joshua processors, and FC-PGA Intel Coppermine processors.

The new generation PGA Celeron processors ship in the familiar square plastic package, and they install in a Zero Insertion Force (ZIF) socket called a Socket-370. The new Celeron processors are close to Pentium-II performance because they include a level-2 cache memory of 128K. However, they operate over a 66 MHz system bus and they currently ship at clock speeds of up to 533 MHz.

The new Cyrix PGA Joshua processors also fit into the Socket-370. The Joshua will include a 256K on-chip L2 cache, which runs at full processor speed. It is the first non-Intel chip to plug into the same socket as a Celeron. The Cyrix Joshua runs over a 100 and 133 MHz system bus.

The FC-PGA Coppermine processor operates over a 66, 100 or 133 MHz system bus. The FC-PGA Coppermine ships with clock speeds running from 500 MHz through to 750 MHz.

Assemblers can choose the processor they need to meet performance or price targets. You can configure the system for any of the supported processor clock speeds using the BIOS setup utility. It is not necessary to set switches or jumpers.

### ***Three DIMM Memory Slots***

The board has three DIMM slots for the installation of 168-pin, 3.3V standard or registered SDRAM (Synchronous Dynamic Random Access Memory) memory modules. The system supports memory that has built-in error correction (EC), error correction code (ECC), or has no error correction.

The DIMM slots support PC-100 (100 MHz) and PC-133 (133 MHz) memory modules. You can install one, two or three modules. Each memory module can hold a maximum capacity of 512 MB of standard SDRAM chips so maximum memory capacity is 1.5 GB.

The VIA chipset on this board supports an asynchronous memory bus architecture, and provides option of 66/100, 100/66, 100/133 or 133/100 MHz CPU and memory bus combinations.

### ***Optimized Chipset***

This board uses the VIA VT82C694X/VT82C596B chipset. The VT82C694X forms the north bridge and supports system buses of 66, 100 and 133 MHz. It is AGP Rev. 1 compliant and supports 3.3v AGP devices operating over a 66/133 MHz bus. The memory bus supports the fastest access (X-1-1-1) for both 66, 100 and 133 MHz operation. The board is compliant with PCI Rev.2.1 operating at 33 MHz Four PCI Bus masters are supported.

The south bridge is provided by the VT82C596B. This chip supports ACPI (Advanced Configuration and Power Interface) Rev 1.0, onboard PCI IDE channels, USB ports, and a System Management Bus for OS control and configuration of devices.

This new VIA chipset is designed to lower cost of performance, by offering a cheap solution to using the latest range of processors, while offering a clear upgrade path to the future generation of 133 MHz processor types. This chipset makes the evolutionary move from PC100 to PC133, increasing the speed of the system and memory buses from 100 MHz to 133 MHz. The 133 MHz memory interface also opens the door to a wide range of PC133 memory devices now on the market.

This latest VIA chipset supports asynchronous memory bus architecture, and provides the option of 66/100, 100/66, 100/133 and 133/100 MHz CPU and memory bus combinations. By supporting 66/100/133 CPU bus and memory settings, this chipset is a highly scaleable choice for end users building Celeron or Joshua level systems, and allows for a wide range of cost-effective system design options.

### ***Built-in PCI 3D Sound***

The CMI 8738 is a single chip solution for PCI-bus 3D audio. The chip provides Sound Blaster 16-bit-compatible audio, plus support for Microsoft's DirectSound 3D specification and Aureal A3D interface. The sound ports include jacks for speakers, microphone and stereo in, and a

game/MIDI port. The audio system supports full duplex operation and drivers are available for WIN 95/98/2000 and WIN NT 4.0. The audio system can output sound to 4 loudspeakers and also supports SPDIF 24-bit digital sound input and output.

#### ***Optional Built-in Communications***

The mainboard has an integrated fax/modem connector. As an option, you can purchase a fax/modem extension bracket which connects the line and telephone RJ11 sockets to the board. The fax/modem supports the V.90 protocol that allows transmissions at up to 56Kbps and is fully compatible with earlier transmission and error correction standards. It supports automatic fall back and caller ID.

#### ***Expansion Options***

Although this is an ATX board, it has a generous allocation of expansions slots. One AGP slot is available for the installation of an Accelerated Graphics Port graphics adapter. Four 32-bit PCI slots can be used by PCI expansion cards. One legacy 8/16-bit ISA slot can be used by ISA cards.

#### ***Integrated I/O***

The board has a comprehensive set of integrated I/O ports. The I/O port array features PS/2 keyboard and mouse ports, a parallel port, two USB ports, two serial ports, a monitor port, a game/MIDI port, and three audio jacks. Optionally, you can use the built-in mainboard header to add in an infrared port. The mainboard has two PCI-IDE channels and a floppy disk drive interface.

#### ***Hardware Monitoring***

The mainboard is installed with an integrated hardware monitoring system (GL520SM). Using this system and the monitoring software supplied with the board, users and system administrators can monitor critical parameters such as the CPU temperature, the fan speeds and so on. Hardware monitoring helps maintain the system and reduce maintenance costs and downtime.

#### ***Keyboard Power On Feature***

Using the system BIOS setup program, you can configure the system to turn on using a keyboard-typed password. A green keyboard is not required.

### ***Programmable Firmware***

The mainboard includes Award BIOS that allows BIOS setting of CPU parameters. The fully programmable firmware enhances the system features and allows users to set power management, CPU and memory timing, LAN and modem wake-up alarms, and so on. The firmware can also be used to set parameters for different processor clock speeds so that you don't need to change mainboard jumpers and switches.