

## Overview

The PA-2005 mainboard combines the advanced capabilities of the VIA Apollo 580VP® chipset with a high-performance concurrent PCI local bus architecture to provide the ideal platform for unleashing the unsurpassed speed and power of the Intel Pentium® processor.

This highly-flexible mainboard is designed to run a full range of Intel Pentium™, Cyrix 6x86/MX™, IBM 6x86/MX™ and AMD-K5/K6™ processors; and can be easily upgraded using its 321-pin ZIF socket. The processor's advanced performance is complemented by a second level write back Pipeline Burst SRAM cache of up to 1MB and main memory of up to 512MB RAM. The main memory is installed using the board's four 72-pin SIMM sockets that accept an unrivaled choice of high-speed EDO, ultra-fast Burst EDO, or standard Fast Page Mode DRAM.

The PA-2005 integrates a full set of I/O features onboard, including two 16550 UART compatible serial ports, one EPP/ECP capable parallel port, and one Floppy Disk Drive controller. It also comes with a built-in Enhanced IDE controller that provides convenient, high-speed PCI Bus Master connections with up to four IDE devices, including Hard Disk and CD-ROM drives. Three 16-bit ISA slots and four 32-bit PCI slots provide ample room for further expansion. The mainboard also features support for the state-of-the-art Universal Serial Bus (USB) that provides ease-of-use and high-speed Plug & Play connections to future USB compliant peripheral devices. The IrDA compliant serial port and optional onboard SIR support further enhance system I/O connectivity.

This chapter gives you a brief overview of the PA-2005 mainboard. In addition to basic information on the board's main components and features, it also provides advice on how to upgrade and expand it. For updated BIOS, drivers, or product release information, please visit FIC's home page at: <http://www.fic.com.tw>.

Congratulations on your decision to adopt the PA-2005 mainboard. With its high-speed PCI local bus architecture and ultra-fast I/O connections, the PA-2005 provides the ultimate solution for optimizing the performance of your high-end system.

## Main Features

The PA-2005 mainboard comes with the following high-performance features:

- **Easy Installation**  
Award BIOS with support for Plug and Play, auto detection of Hard Drive and IDE features, and MS Windows 95®.
- **Flexible Processor Support**  
The onboard 321-pin ZIF socket supports Intel Pentium (P54C) CPU speed 75/90/100/120/133/150/166/200 MHz processors / P54CTB / P55C.  
Cyrix 6x86-P120+ (100 MHz) / 6x86-P133+ (110 MHz) / 6x86-P150+ (120 MHz) / 6x86-P166+ (133 MHz) / 6x86-P200+ (150 MHz)\*  
/ MX series processors.  
IBM 6x86-P120+ (100 MHz) / 6x86-P133+ (110 MHz) / 6x86-P150+ (120 MHz) / 6x86-P166+ (133 MHz) / 6x86-P200+ (150 MHz)\*  
/ MX series processors.  
AMD K5-PR75 (75 MHz) / K5-PR90 (90 MHz) / K5-PR100 (100 MHz) / K5-PR120 (90 MHz) / K5-PR133 (100 MHz) / K5-PR150 (105 MHz) / K5-PR166 (116 MHz) / K5-PR200 (133 MHz) / K6-166/200 processors.

<b>NOTE :</b> * The support for Cyrix 6x86-P200+ and IBM 6x86-P200+ is optional.
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- **Leading Edge Chipset**  
Intel Apollo 580VP chipset, including a CPU interface controller, advanced cache controller, integrated DRAM controller, synchronous ISA bus controller, PCI local bus interface, integrated power management unit.
- **Ultra-fast Level II Cache**  
Supports up to 256KB/512KB/1MB synchronous PBSRAM direct-mapped write-back cache memory.
- **Versatile Main Memory Support**  
Accepts up to 512MB RAM in two banks using 72-pin SIMMs of 4, 8, 16, 32, 64, 128MB with support for EDO, BEDO, and Fast Page Mode memory.
- **ISA & PCI Expansion Slots**  
Three 16-bit ISA and four 32-bit PCI expansion slots provide all the room you need to install a full range of add-on cards.

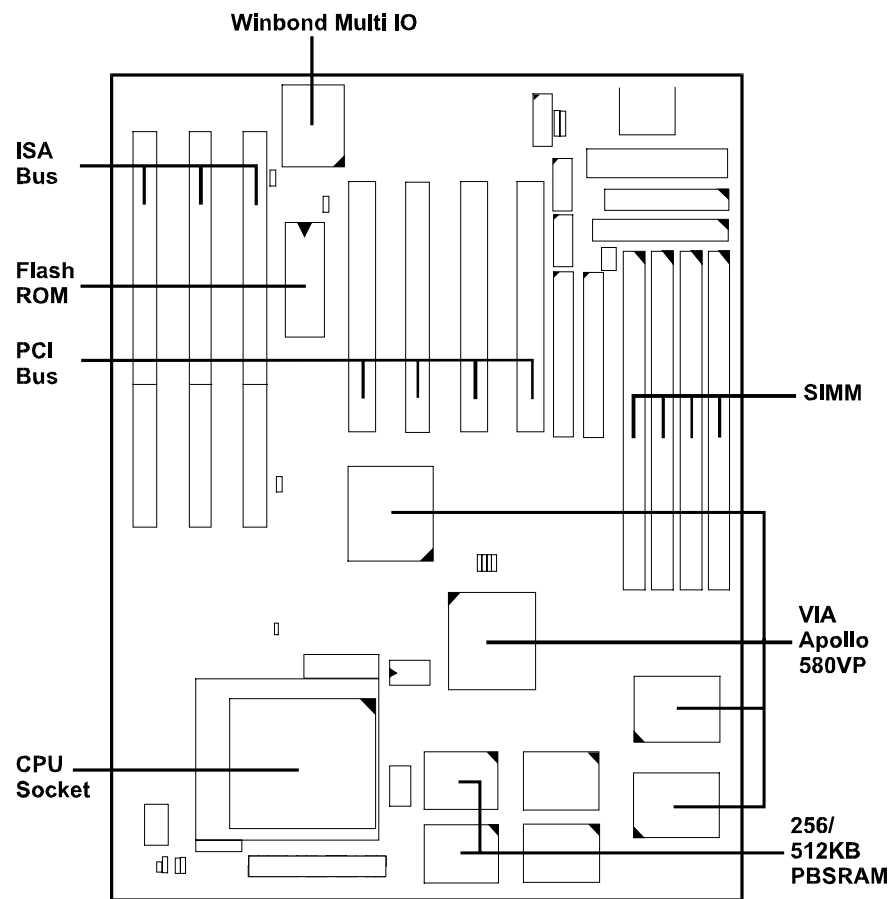
- **USB Support (reserved for future upgrade)**  
Onboard support for two Universal Serial Bus connectors via a plug-in connector.
- **Enhanced PCI Bus Master IDE Controller**  
Integrated Enhanced PCI local bus IDE controller with two connectors supports up to four IDE devices such as Hard Disk, CD-ROM or Tape Backup drives via two channels for high speed data throughput. This controller supports PIO Modes 3 and 4, and DMA Mode 2 for optimized system performance.
- **Super Multi I/O**  
Integrated Winbond W83877F or W83877AF I/O chipset features two 16550A UART compatible serial ports, one EPP/ECP capable parallel port, one IR port, and one floppy disk drive connector.

## **Package Checklist**

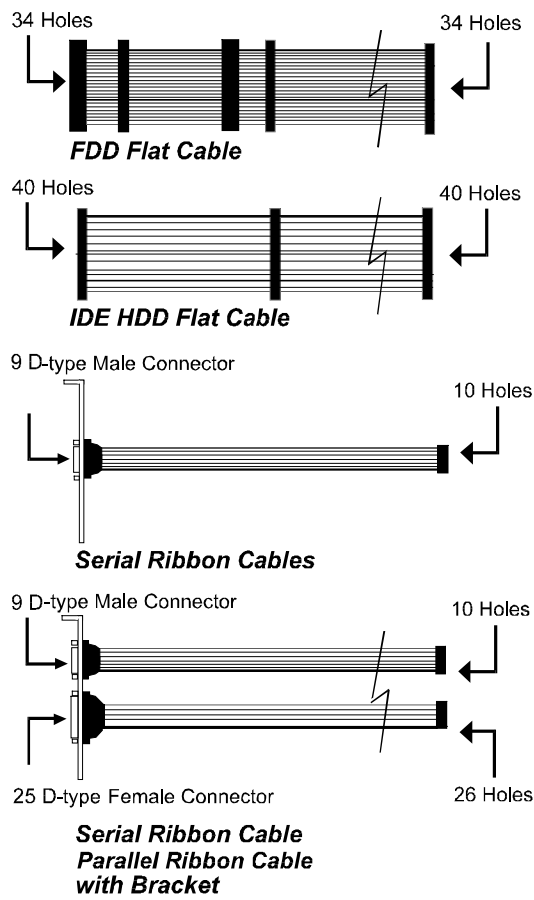
Please check that your package contains all the items listed below. If you discover any item is damaged or missing, please contact your vendor.

- The PA-2005 mainboard
- One serial port and parallel port cable with bracket
- One serial port cable with bracket
- One IDE device cable
- One floppy disk drive cable
- One SIR cable (optional)
- This user manual
- PS/2 mouse cable with bracket (optional)

## The PA-2005 Mainboard



The Cables



## This User Manual

This manual is designed to guide you and facilitate your use of the PA-2005 mainboard. It contains a description of the design and features of the mainboard, and also includes useful information for changing the configuration of the board and the system it is installed in. The manual is divided into three chapters:

- **Chapter 1 - Overview**  
gives an overview of the mainboard and describes its major components and features.
- **Chapter 2 - Installation Procedures**  
gives instructions on how to set up the mainboard, including jumper settings and CPU installation guides.
- **Chapter 3 - Award BIOS Setup**  
briefly explains the mainboard's BIOS system setup in general and tells you how to run it and change the system configuration settings.
- **Appendix**  
provides application tips that help the mainboard to achieve its best performance.

<p><b>NOTE :</b> The material in this manual is for information only and is subject to change without notice. We reserve the right to make changes in the product design without reservation and without notification to its users. We shall not be liable for technical or editorial omissions made herein; nor for incidental or consequential damages resulting from the furnishing, performance, or use of this material.</p>
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## Something Interesting

This section provides useful information that you will need to know should you decide to modify or upgrade the configuration of the mainboard and the system it is installed in. If you do not have the confidence to upgrade the mainboard yourself, we advise that you consult a qualified service technician for assistance.

## The BIOS Setup Utility

The BIOS (Basic Input Output System) is the basic firmware that instructs the computer how to operate. For the BIOS to work properly, there must be a record of the computer's hardware and configuration settings for it to refer to. This record is created using the Setup Utility, a program that is stored permanently in the BIOS ROM chip on the mainboard.

The system configuration record created by the Setup Utility is also stored on the mainboard, but not permanently. This section of the memory is stored in the NVRAM.

When you buy your computer, the system configuration record will already be set and may in some cases differ from the basic defaults. The first time you use your computer or when you need to re-configure your system, you should run the Setup Utility and write down the settings.



## IRQ Functionality

As you read through this manual, you will see the term **IRQ** on a number of occasions. It is important for you to know what this term means, particularly if you intend to upgrade your system.

IRQ stands for **Interrupt Request**, the process in which an input or output device tells the processor to temporarily interrupt its current task and immediately process something from the source of the interrupt. When it has completed this, the processor returns to the task it was already processing. Devices that need an IRQ line to operate sometimes need to have exclusive use of that line.

A large number of add-on cards, such as sound cards and LAN cards, require the use of an IRQ line to function. Some of IRQs may already be in use by components in the system such as the keyboard and mouse. Add-on cards that need to use an IRQ draw from the unused group of IRQs. When installing a card that uses an IRQ, it will have a default IRQ setting which you might have to change if that IRQ is already in use and cannot be shared.

Both ISA and PCI add-on cards may need to use IRQs. System IRQs are available to add-on cards installed on the ISA bus first; the remaining ones can be used by cards installed on the PCI bus. There are two categories of ISA add-on cards: so-called **Legacy** ISA cards, which need to be configured manually and then installed in any available ISA slot; and **Plug and Play** (PnP) ISA cards, which are configured automatically by the system. As a result, when you install Legacy ISA cards, you have to carefully configure the system to ensure that the installed cards do not conflict with each other by having the same IRQ. With PnP cards, on the other hand, IRQs are assigned automatically from the ones available in the system. In the case of PCI add-on cards, the BIOS automatically assigns an IRQ card to the PCI slot the card is installed in.

## DMA Channels of ISA Cards

Some Legacy and PnP ISA add-on cards may also need to use a Direct Memory Access (DMA) channel. DMA assignments for this mainboard are handled in the same way as the IRQ assignment process outlined above. For more information, please refer to Chapter 3 of this manual.

## Enhanced IDE

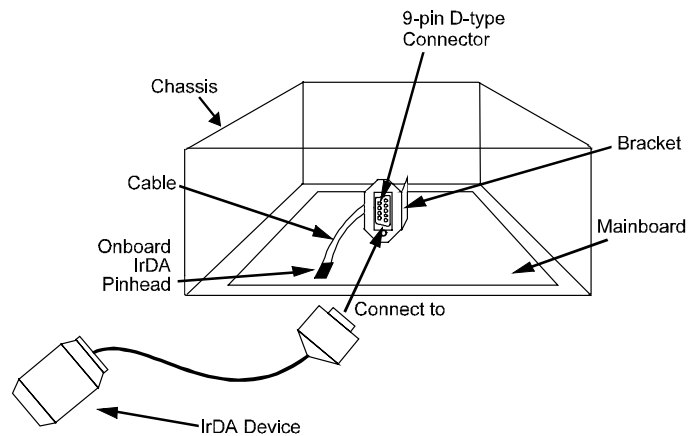
This mainboard features an integrated Enhanced IDE controller that provides convenient, high-speed connections with up to four IDE devices, such as Hard Disk, CD-ROM and Tape Backup Drives. Enhanced IDE is an upgrade of the original IDE specification and provides increased capabilities and performance in a number of areas, including support for Hard Disk Drives utilizing the PIO Mode 4 timing scheme.

With the integrated IDE controller you can connect up to four IDE peripheral devices to your system. All devices are categorized in the same way that IDE Hard Disks were configured in the past, with one device set as the **Master** device and the other as the **Slave** device. We recommend that Hard Disk Drives use the **Primary IDE connector** and that CD-ROM drives utilize the **Secondary IDE connector** for improved system performance.

## Serial Infrared (SIR) Connections

This mainboard features support for highly-sophisticated SIR technology, which allows bi-directional and cordless data transactions with other IrDA compliant computers and peripheral devices using infrared as a medium. This transmission is carried out in either Full Duplex Mode or Half Duplex Mode. The former allows simultaneous data transmission and reception, while the latter disables the reception when transmission occurs.

The I/O chipset on this mainboard features a SIR interface that is fully compliant with the IrDA standard. An IrDA device can be installed via a **9-pin D-type connector** in the rear panel of the computer which is linked by a cable to the onboard IrDA pinhead, as shown in the illustration below.



The **serial port COM2** on this mainboard is designed to be a **SIR compliant** port. If you wish to install the SIR connection feature, you need to adjust the BIOS option for high-speed performance.

## Universal Serial Bus (USB) Functionality

This mainboard features integrated support for state-of-the-art USB technology, which provides high-speed and easy-to-use Plug & Play connections to the future generation of external peripherals, such as keyboards, mouse, monitors, game devices, scanners, printers, and fax/modems.

USB overcomes conventional I/O bottlenecks by combining the I/O ports into a single dual-channel connector. For optimum ease of use and flexibility, USB not only allows the automatic detection and configuration of peripherals after installation, but also enables the simultaneous connection.

This mainboard features an optional USB connector bracket that is connected by a cable to the onboard USB pinhead. The bracket can be installed in one of the I/O expansion slots on the rear panel of the system, as shown in the illustration below. It provides fast and convenient Plug and Play peripheral connections outside your computer, allowing you take full advantage of the universal functionality and flexibility of USB technology.

