

Overview

The PA-2001 mainboard combines the advanced capabilities of the VIA Apollo chipset with a high-performance 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 Pentium processors and can be easily upgraded using its 321-pin ZIF (Zero Insertion Force) socket. The processor's advanced performance is complemented by a second level write-back cache of up to 1MB and a main memory of up to 64MB RAM. The main memory is installed using the mainboard's four 72-pin SIMM sockets that accept either standard Fast Page Mode DRAM or the new high-performance EDO (Extended Data-Out) DRAM.

The PA-2001 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 connections with up to four IDE devices, including hard disk and CD-ROM drives. Four 16-bit ISA slots and three 32-bit PCI slots provide ample room for further expansion.

This chapter gives you a brief overview of the PA-2001 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-2001 mainboard. With its high-speed ISA local bus architecture and ultra-fast I/O connections, the PA-2001 provides the ultimate solution for optimizing the performance of your high-end system.

Main Features

The PA-2001 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, MS Windows 95®, and Windows NT® compatible to make setup of hard drives, expansion cards, and other devices virtually automatic.

- **Flexible Multi-Processor/Multi-Speed Support**

Onboard 321-pin ZIF socket and switching voltage regulator supports a complete range of leading-edge processors:

Intel Pentium® (P54C) 75/90/100/120/133 MHz processors.

Cyrix® 6x86™ processors.

- **Leading Edge Chipset**

VIA Apollo chipset, including a CPU interface controller, advanced cache controller, integrated DRAM controller, synchronous ISA bus controller, PCI local bus interface, integrated power management unit, internal keyboard controller, real-time clock and clock generator.

- **Ultra-fast Cache**

Supports 256KB/512KB/1MB standard 3.3V or mixed voltage SRAM direct-mapped write-back cache memory.

- **Versatile Main Memory Support**

Accepts up to 64MB RAM in two banks using 72-pin Fast Page Mode (FPM) or Extended Data Out (EDO) SIMMs of 4, 8, 16, or 32MB.

- **ISA/PCI Expansion Slot**

Four 16-bit ISA and three 32-bit PCI expansion slots provide all the room you need to install a full range of add-on cards.

- **Enhanced Master Mode PCI IDE Controller**

Comes with an onboard integrated IDE controller with two connectors that supports four IDE devices such as hard disk, CD-ROM or tape backup drives via two channels for high speed (33MB/sec) data throughput. This controller supports PIO Modes 3 and 4, and Bus Master IDE DMA Mode 2 for optimized system performance.

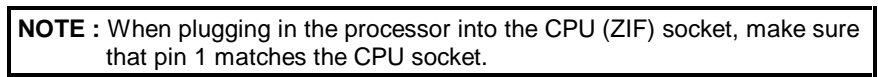
- **Super Multi I/O**

Integrated Winbond WB 83787F/787IF/877 Plug and Play Super I/O chipset features two high-speed 16550 UART compatible serial ports, one EPP/ECP capable parallel 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-2001 mainboard
- ☒ This user's manual
- ☒ Support software drivers and utilities
- ☒ One floppy disk drive ribbon cable
- ☒ One IDE hard disk drive ribbon cable



This User's Manual

This manual is designed to guide you and facilitate your use of the PA-2001 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, which contain the main body of information normally referred to by users.

- **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.

NOTE : The materials in this manual are 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.

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 on 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 it is stored in is 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. Please see Chapter 3 for an explanation on how to run the Setup Utility.

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 number 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.

An ISA add-on card may need to use IRQs. System IRQs are available to add-on cards installed on the ISA 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 the 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.

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.

Infrared Connections

This mainboard features support for highly-sophisticated IR 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 an IR (SIR) interface that is fully compliant with the IrDA standard. An IrDA device can be installed via a 9-pin D-SUB connector in the rear panel of the computer which is linked by a cable to the onboard IrDA pinhead.

Highly Convenient Integrated I/O Connectors

This mainboard features an integrated rear I/O panel that incorporates a full set of I/O ports to allow simple and convenient connections to a complete selection of external peripheral devices.