Overview

The PA-2010 mainboard combines the advanced capabilities of the VIA 580VP chipset with such leading-edge features as USB and lightning-fast SDRAM support on an easily-expandable ATX form factor to provide the ultimate platform for high-performance Microsoft Windows 95 multimedia systems.

This highly-flexible mainboard is designed to run a full range of Intel Pentium, Cyrix/IBM 6x86, and AMD-K5 processors, and can be easily upgraded using its 321-pin ZIF socket and Split Voltage Regulator. 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 DRAM. The main memory is installed using the board's four 72-pin SIMM sockets and two 168-pin DIMM sockets that accept highest performance SDRAM

Built around a versatile ATX form factor, the PA-2010 provides ample room for expansion with its four 16-bit ISA slots and four 32-bit PCI slots. The PA-2010 also comes with a full set of I/O features onboard, including two state-of-the-art USB connectors, two 16550A UART compatible serial ports, and one EPP/ECP capable parallel port, which are integrated into a single dual-height rear I/O panel for optimum ease of configuration. Other advanced features include a high-speed PCI Bus Master Enhanced IDE controller that provides high-speed connections to up to four IDE devices, including Hard Disk and CD-ROM drives, an IrDA compliant serial port, and an upgradeable Plug and Play Flash BIOS.

This chapter gives you a brief overview of the PA-2010 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-2010 mainboard. With its high-speed PCI local bus architecture and ultra-fast I/O connections, the PA-2010 provides the ultimate solution for optimizing the performance of your high-end system.

Main Features

The PA-2010 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 compatible.

- 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) processors / 6x86-P200+ (150 MHz)* processors / M2 series processors.
  IBM 6x86-P120+ (100 MHz) / 6x86-P133+ (110 MHz) / 6x86-P150+ (120 MHz) / 6x86-P166+ (133 MHz) processors / 6x86-P200+ (150 MHz)* processors / M2 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) processors.

NOTE : * Support for Cyrix 6x86-P200+ and IBM 6x86-P200+ is optional.

- Leading Edge Chipset
  VIA 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 onboard Pipeline Burst SRAM that can be expanded to 1MB using an optional cache module.

- Versatile Main Memory Support
  Accepts up to 512MB RAM in two banks using four SIMMs of 8, 16, 32, 64, 128MB with support for FPM and EDO DRAM and two DIMMs of 8, 16, 32, 64MB with support for SDRAM and EDO DRAM.

- ISA & PCI Expansion Slots
  Four 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)
  Two Unniversal Serial Bus plug-in connectors integrated into rear I/O panel.

- 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 W83877F chipset features two 16550A UART compatible serial ports, one EPP/ECP capable parallel port, one IR port, and one Floppy Disk Drive connector.

This User Manual

This manual is designed to guide you and facilitate your use of the PA-2010 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.

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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 it is stored is 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

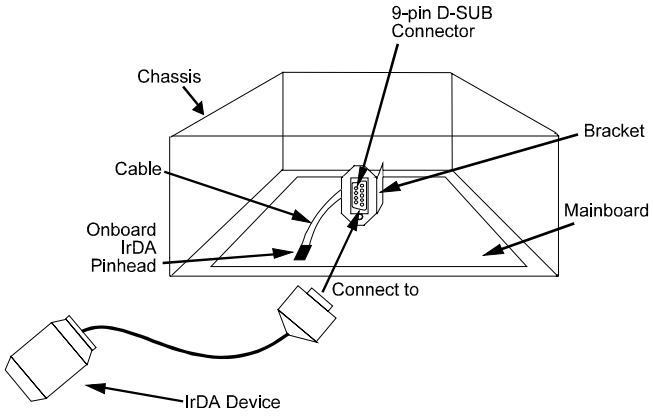
This mainboard features an integrated Enhanced IDE controller that provides convenient, high-speed connections with up to four IDE devices, such as Hard Disk, CD-ROM and Tape Backup Drives. Enhanced IDE is an upgrade of the original IDE specification and provides increased capabilities and performance in a number of areas, including support for Hard Disk Drives of over 1.2GB and faster data transfer rates 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-SUB 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.

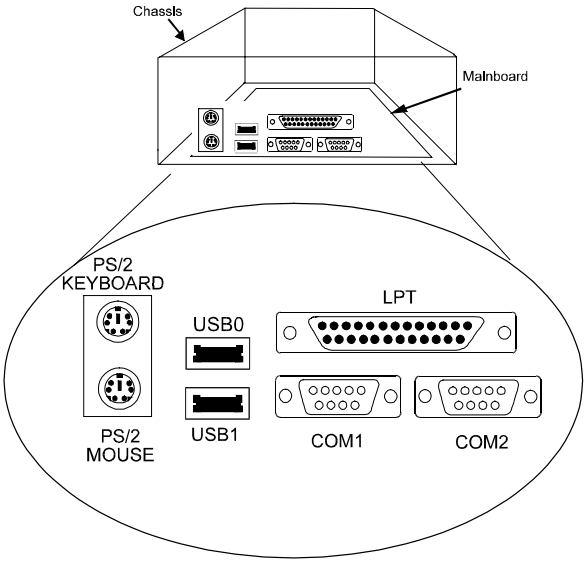


The serial port COM2 on this mainboard is designed to be a SIR compliant port. If you wish to install the SIR connection feature, you need to adjust the BIOS option for high-speed performance.

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.

In addition to two 16550A UART compatible serial ports and one EPP/ECP capable parallel port, the panel features two USB connectors that provide high speed connection to the next generation of USB devices. PS/2 keyboard and PS/2 mouse connectors provide additional I/O connectivity.



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