Overview

Based on the new highly-integrated VIA 590VP, the PA-2011 combines blistering Pentium® processor performance with support for intelligent diagnostic and power management features to provide a powerful and versatile ATX-size platform for leading-edge PC '97 compliant systems.

With its switching voltage regulator, the PA-2011 runs a complete range of Intel Pentium® processors, including the Intel Pentium processor with MMX™ technology, as well as the AMD-K5™ and Cyrix/IBM 6x86™, and is easily upgradable to the Cyrix/IBM M2 and the AMD-K6™. For added power and performance, the PA-2011 takes up to 512KB Pipeline Burst Level II cache and up to 512MB DRAM via four-72 SIMM sockets and two 168-pin DIMM sockets which accept high-speed EDO, and lightning-fast SDRAM memory types.

The PA-2011 comes with a full set of I/O features conveniently integrated on the rear I/O panel, including two USB connectors. The board also has an integrated PCI Bus Master Enhanced IDE controller with support for the new Ultra DMA/33 protocol, which doubles ATA-2 Hard Disk Drive data transfer rates to 33MB/s while maintaining full backwards compatibility with existing PIO Mode 3, PIO Mode 4 and DMA Mode 2 devices.

Fully compliant with the Microsoft PC'97 standard at both the hardware and BIOS levels, the PA-2011 comes with support for intelligent Hardware Monitoring and DMI features which continuously check the thermal status of your system and reduce the cost of ownership through improved manageability.

Chapter 1 of this manual gives you a brief overview of the PA-2011 mainboard, including its main components and features. Chapter 2 contains advice on how to upgrade and install key components on the mainboard, while Chapter 3 provides detailed information about the board's BIOS settings. For the most up-to-date information about your mainboard and the latest FAQs and BIOS updates, visit FIC Online at www.fic.com.tw.

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-2011 mainboard

- ■ This user manual

- ■ One IDE device cable

- ■ One floppy disk drive cable

Main Features

The PA-2011 mainboard comes with the following high-performance features:

■ Easy Installation
AMI BIOS with support for auto-detection of Hard Disk Drives, Plug and Play devices, and PS/2 keyboard and mouse, to facilitate the installation of HDDs, expansion cards and other peripheral devices.

■ Leading Edge Chipset
VIA 590VP chipset with integrated DRAM and LII cache controllers as well as support for Intel's new Dynamic Power Management Architecture (DPMA), Concurrent PCI (PCI 2.1), and USB.

■ Flexible Processor Support
Onboard 321-pin ZIF socket and switching voltage regulator support complete range of leading-edge processors:
Intel Pentium® P55C with MMX™ technology 166/200/233 MHz processors.
Intel Pentium® P54C/P54CS 90/100/120/133/150/166/200 MHz processors.
AMD-K6™-166 (166 MHz) / K6-200 (200 MHz) / K6-233 (233 MHz) processors.
AMD-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.
Cyrix M2 150/166/200/233 MHz processors.
Cyrix 6x86™- PR133+ (110 MHz) / 6x86-PR150+ (120 MHz) / 6x86-PR166+ (133 MHz) / 6x86-PR200+ (150 MHz) processors.
IBM M2 150/166/200/233 MHz processors.
IBM 6x86™- P133+ (110 MHz) / 6x86-PR150+ (120 MHz) / 6x86-PR166+ (133 MHz) / 6x86-PR200+ (150 MHz) processors.

■ Ultra-fast Level II Cache
Supports 256/512KB onboard Pipeline Burst Level II direct-mapped write-back cache.

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

■ 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.

■ Enhanced PCI Bus Master IDE Controller with Ultra DMA/33 Support
Integrated Enhanced PCI Bus Master IDE controller features two dual-channel connectors that accept up to four Enhanced IDE devices, including CD-ROM and Tape Backup Drives, as well as Hard Disk Drives supporting the new Ultra DMA/33 protocol which doubles data transfer rates to 33MB/sec. Standard PIO Mode 3, PIO Mode 4, and DMA Mode 2 devices are also supported.

■ Super Multi I/O
Integrated SMC669/UMC8669 Plug and Play multi-I/O chipset features two high-speed 16550A compatible serial ports, one EPP/ECP capable parallel port, and one FDD connector. COM2 can be configured as an SIR compliant port for infrared connections.

■ USB Support
Two USB ports integrated in the rear I/O panel allow convenient, high-speed Plug and Play connections to the growing number of USB compliant external peripheral devices on the market.

■ Onboard IrDA Connector
An IrDA connector for wireless infrared connections is available.

Advanced Features

This mainboard comes equipped with the most advanced new features that not only optimize the performance of the latest processors but also enhance the manageability, power management capabilities, and user-friendliness of your system. This section provides detailed information on these features, and how they are implemented on the mainboard.

■ Optimized Intel MMX™ Performance
The mainboard utilizes the advanced features of the VIA 590VP to optimize the unrivaled performance of the Intel Pentium® processor with MMX™ technology, allowing you to enjoy a richer video, audio, digital imaging and communications experience from the latest generation of multimedia software. To provide you with additional flexibility, the mainboard also supports other leading-edge processors featuring Intel's MMX™ technology, including the AMD-K6™ processor.

■ Lightning-Fast SDRAM Performance
The mainboard supports the new generation of lightning-fast SDRAM (Synchronous Dynamic Random Access Memory) via its two onboard 168-pin DIMM sockets. SDRAM delivers an added boost to overall system performance by increasing the CPU-to-memory data transfer rate to 528MB/sec compared to 264MB/sec for conventional EDO DRAM. SDRAM performance on the PA-2011 is further boosted by the board's integrated I^2C controller, which optimizes the memory timing settings.

■   Blistering Ultra DMA/33 HDD Performance
    With its integrated Enhanced PCI Bus Master IDE controller that supports
    the new Ultra DMA/33 protocol, this mainboard doubles HDD data transfer
    rates to 33MB/sec, compared to 16MB/sec for conventional PIO Mode 3,
    PIO Mode 4, and DMA Mode 2 devices. By reducing the CPU's workload
    and increasing CPU utilization, Ultra DMA/33 significantly improves
    system performance when running applications under Windows® 95 and
    Windows® NT environments. The Ultra DMA/33 protocol is completely
    backward compatible with conventional ATA-2 HDD devices; so the
    mainboard also supports existing PIO Mode 3, PIO Mode 4 and DMA Mode
    2 devices using the same cable.

    With the integrated Enhanced PCI Bus Master IDE controller you can
    connect up to four Enhanced 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 optimum system performance.

■   Concurrent PCI Architecture
    The mainboard's Concurrent PCI Architecture enables more efficient
    operation of CPU, PCI and ISA transactions for faster and smoother
    multimedia performance. It also allows the use of PCI 2.1 and 2.0
    compatible add-in cards for long system life, built-in scalability and the
    flexibility to adapt your system to future applications.
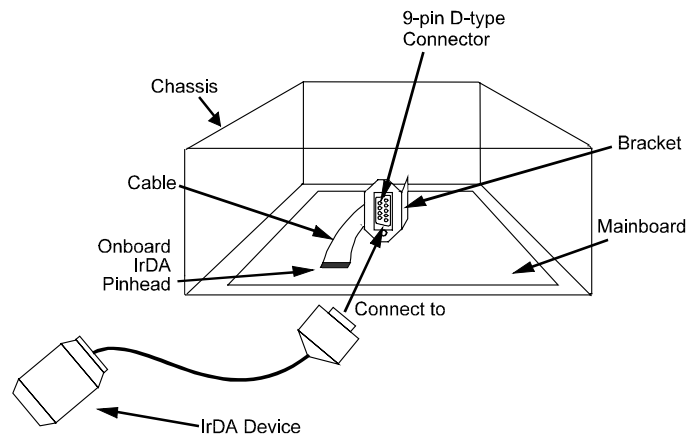
PC '97 Compliant

This mainboard is fully compliant with the new PC '97 standard at both the BIOS and hardware levels. PC '97 is a set of hardware, bus and device design requirements set by Microsoft in conjunction with other industry leaders aimed at making PCs easier to use by maximizing cooperation between the operating system and hardware.

The system design requirements under PC '97 support a synergy among PC hardware, Microsoft Windows® Operating Systems, and Windows®-based software. Key elements include support for Plug and Play compatibility and power management for configuring and managing all system components, and 32-bit device drivers and installation procedures for both Windows® 95 and Windows® NT.

Infrared (IR) 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 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.
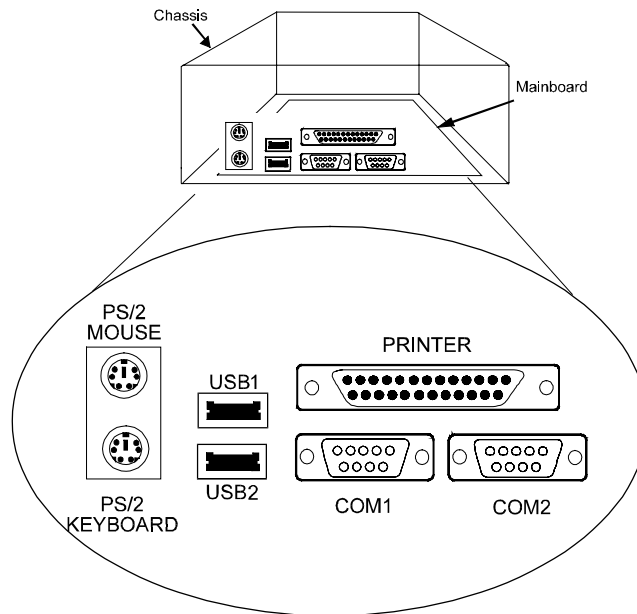

The serial port COM2 on this mainboard is designed to be a IR compliant port. If you wish to install the IR connection feature, you need to adjust the BIOS option for high-speed performance. Please read page 56 of this manual.

Highly Convenient Integrated I/O Connectors

This mainboard features has 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 connections to the new generation of USB peripheral devices. PS/2 keyboard and PS/2 mouse connectors provide additional I/O connectivity.

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