

## Overview

Based on the new highly-integrated Intel 430TX PCIset, the PT-2007 combines blistering Pentium® processor performance with support for intelligent diagnostic and power management features like Hardware Monitoring, DMI (Desktop Management Interface) and ACPI (Advanced Configuration and Power Interface), to provide a powerful and versatile Baby AT-size platform for leading-edge PC '97 compliant systems.

With its switching voltage regulator, the PT-2007 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 PT-2007 takes up to 512KB Pipeline Burst Level II cache and up to 256MB DRAM via four-72 SIMM sockets and two 168-pin DIMM sockets which accept high-speed EDO, and lightning-fast SDRAM memory types.

The PT-2007 comes with a full set of I/O features 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 PT-2007 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 PT-2007 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](http://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 PT-2007 mainboard
- This user manual
- Software utilities (IDE and DMI)
- One IDE device cable
- One floppy disk drive cable
- One USB riser card (optional)
- One PS/2 mouse cable (optional)

## Main Features

The PT-2007 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 onboard pinhead for PS/2 mouse, to facilitate the installation of HDDs, expansion cards and other peripheral devices.
- **Leading Edge Chipset**  
Intel 82430TX PCIset, a two-chip BGA solution with integrated DRAM and L2 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™- P133+ (110 MHz) / 6x86-P150+ (120 MHz) / 6x86-P166+ (133 MHz) processors.  
IBM M2 150/166/200/233 MHz processors.  
IBM 6x86™- P133+ (110 MHz) / 6x86-P150+ (120 MHz) / 6x86-P166+ (133 MHz) processors.
- **Ultra-fast Level II Cache**  
Supports 512KB onboard Pipeline Burst Level II direct-mapped write-back cache.
- **Versatile Main Memory Support**  
Accepts up to 256MB 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 W83877AF Plug and Play multi-I/O chipset features two high-speed 16550A compatible serial ports, one IR port, one EPP/ECP capable parallel port, and one FDD connector.
- **USB Support**  
Two USB ports on an optional riser card allow convenient, high-speed Plug and Play connections to the growing number of USB compliant external peripheral devices on the market.
- **Optional IrDA Connector**  
An optional IrDA connector for wireless infrared connections is available.

## Advanced Features

SDRAM support, Hardware Monitoring, DMI and ACPI, 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.

### 1). Enhanced Performance Features

#### ■ Optimized Intel MMX™ Performance

The mainboard utilizes the advanced features of the Intel 430TX PCIset 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 PT-2007 is further boosted by the board's integrated I2C 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.

## 2). Intelligent Features

This mainboard is equipped with highly-sophisticated intelligent Hardware Monitoring features that prevent potential damage to your system by warning you when the system is overheated and automatically slowing down the processor clock speed and activating the system fan to restore the system to its optimum temperature. Other intelligent features include system BIOS virus protection and a switching voltage regulator.

### ■ CPU Thermal Monitoring Alert

A special heat sensor located under the CPU monitors the CPU temperature to make sure that the system is operating at a safe heat level. If the temperature is too high, the sensor automatically generates an SMI (System Management Interrupt) to turn on the system fan and slow down the CPU clock frequency. At the same time, the system warns you that the CPU is overheating. CPU utilization is restored to normal levels when the temperature returns to a safe level.

For details on how to set the system thermal feature on the PT-2007 mainboard, please see pages 54 of this manual. This feature requires a power supply with a soft-off power controller.

### ■ Switching Voltage Regulator

This mainboard features a switching voltage regulator, which significantly reduces the temperature of the CPU and regulator itself. The switching voltage regulator also ensures full upgradability to the next generation of Socket 7 processors, which will require more electrical current and generate more heat both in the processor and the system.

## **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.



## ACPI Ready

This mainboard fully implements the new ACPI (Advanced Configuration Power Interface) standard, an open PC hardware, Operating System and peripheral device interface specification that is supported by such industry leaders as Microsoft and Intel. ACPI enables PCs to come on instantly when accessed by a user and remain available to perform certain tasks even after the PC is turned off. Additional benefits of ACPI include improved thermal management, reduced energy consumption, and OS directed Plug and Play capabilities.

ACPI is currently being implemented in forthcoming versions of Microsoft Windows® 95 and Windows® NT code-named “Memphis”. Key ACPI features implemented on this mainboard include:

- **Soft-Off Support**

The mainboard’s Soft-Off feature allows you to turn off your computer using the Operating System (Windows® 95). The feature requires a power supply with a soft-off power controller.

- **Remote Ring-On**

The Remote Ring-On function allows your computer to be turned on remotely via a modem while it is in Sleep Mode. This feature is particularly useful when, for example, you are expecting a fax late at night and leave only your modem on to minimize power consumption. As soon as the phone rings, the modem automatically turns on the system, which answers the phone and downloads the fax. Then the computer shuts off again, thereby minimizing its consumption of power. The Remote Ring-On function requires a power supply with a soft-off power controller.

- **RTC Alarm**

The RTC alarm feature allows you to implement a number of useful functions, such as automatically sending out a fax late at night.

Please see the AMI BIOS Setup Section for more information on how to use these features.

## **DMI (Desktop Management Interface)**

Enhanced system manageability is becoming an increasingly important factor in reducing the total cost of ownership of systems, particularly in a corporate environment. To provide this capability, this mainboard supports DMI at the BIOS level and includes a DMI Configuration Utility to maintain the Management Information Format Database.

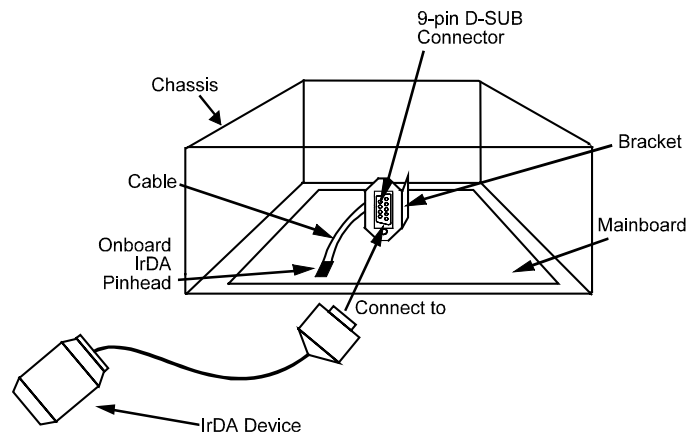
DMI is able to auto-detect and record important information about your system, including the CPU type, CPU speed, internal/external frequencies, and memory size. The BIOS detects this information in 4KB block in the mainboard's Flash EPROM and allows the DMI to retrieve this data from the database. To allow dynamic real-time updating of the DMI information, this mainboard uses the same technology implemented for Plug and Play, which eliminates the need to create a new BIOS image file and for the user to update the whole BIOS.

The board's DMI Configuration Utility also allows the system integrator or end-user to add additional information to the database, such as serial numbers and housing configurations. This information has to be manually entered using the DMI Configuration Utility and updated into the database. For detailed instructions on how to use the DMI Configuration Utility, please refer to page 65 of this manual.

## Serial 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 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 59 of this manual.

## 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 riser card with bracket that 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.

