

Chapter 1: Introduction

Welcome

Congratulations on purchasing the P6IWT-A+ mainboard. The mainboard includes a Slot1 processor slot and a PPGA (Plastic Pin Grid Array) Celeron Socket-370 processor socket. **This feature means that you can install the mainboard with either a Pentium-II cartridge, the SEPP (Single Edge Processor Package) Celeron cartridge, or one of the new generation PPGA Celerons.**

The P6IWT-A+ is a full-sized ATX mainboard that uses 4-layer printed circuit board and measures 305mm x 243mm. The mainboard features the new low-cost Intel 810 chipset which includes an accelerated graphics adapter with digital video output for use by televisions or flat-panel displays. The P6IWT-A+ has a slot1 and a socket-370 so that it can be installed with either a slot1 processor (SEPP Celeron or Pentium-II) or a socket-370 processor (PPGA Celeron). The mainboard includes integrated graphics system, integrated audio system, and integrated fax/modem. A powerful internet-ready workstation can be developed with just the addition of processor and memory. Therefore the P6IWT-A+ is the ideal platform for the creation of a powerful value PC.

This chapter contains the following information:

- ❑ **About the Manual** explains how the information in this manual is organized
- ❑ **Checklist** comprises a list of the standard and optional components that are shipped with this mainboard
- ❑ **Recommendations** lists some Do's and Don'ts from the manufacturer to help ensure reliability and performance from this product
- ❑ **Features** highlights the functions and components that make this one of the best value mainboards on the market

About the Manual

The manual consists of the following chapters:

Introduction

Use the **Introduction** Chapter to learn about the features of the mainboard, and the checklist of items that are shipped with the package.

Installation

Use the **Installation** Chapter to learn how to install the mainboard and get your system up and running.

Setup

Use the **Setup** Chapter to configure the mainboard for optimum performance.

Software

Use the **Software** Chapter to learn how to use the software drivers and support programs that are provided with this mainboard.

Checklist

Compare the contents of your mainboard package with the standard checklist below. If any item is missing or appears damaged, please contact the vendor of your mainboard package.

Standard Items

- ✓ 1 x P6IWT-A+ Mainboard
- ✓ 1 x Cable/Bracket Pack
 - Diskette drive ribbon cable
 - IDE drive ribbon cable
- ✓ Serial ports extension bracket
- ✓ This User's Manual
- ✓ Software Support CD-ROM Disc

Optional Items

- ✓ 1 x V.90 Fax/modem Card

Recommendations

This mainboard automatically determines the CPU clock frequency and system bus frequency for the kind of processor that you install. You may be able to change these automatic settings by making changes to jumpers on the mainboard, or changing the settings in the system setup utility. We strongly recommend that you do not overclock the mainboard to run processors or other components faster than their rated speed.

Overclocking components can adversely affect the reliability of the system and introduce errors into your system. Overclocking can permanently damage the mainboard by generating excess heat in components that are run beyond the rated limits.

Components on this mainboard can be damaged by discharges of static electricity. Handle the board carefully holding it by the edges. Don't flex or stress the circuit board. Keep the board in its static-proof packing until you are ready to install it. Follow the static guidelines given at the beginning of Chapter 2.

Features

The key features of this mainboard are the wide range of processors that can be installed, and the high level of integration which includes built-in audio, video, and communications.

Value-class Processors

Functioning as a platform for a value PC, the P6IWT-A+ is ideally suited for the PPGA (Plastic Pin Grid Array) Celeron processor. The PPGA Celeron has 32k of internal cache memory, 128K of external cache memory, and operates over a 66MHz system bus. The PPGA Celeron ships with clock speeds running from 300 MHz through to 500 MHz. The PPGA Celeron is the premiere choice for an entry-level PC. For slightly better performance, the P6IWT can be installed with a slot-1 processor. The SEPP (Single Edge Processor Package) Celeron is the least expensive slot-1 processor. It has 32K of internal cache memory, 128K of external cache memory (except for older versions), and operates over a 66 MHz system bus. SEPP Celerons ship with clock speed ranging from 266 MHz through 500 MHz.

For higher-performance business class computing, the slot-1 can be installed with a Pentium-II processor cartridge. ***Note that the Intel 810 chipset does not support the Pentium-III cartridge, even though it has a slot1 edge connector.*** The Pentium-II has 32K of internal cache memory and 512K of external cache memory. They operate over a 100 MHz system bus (except for older versions). The Pentium-II ships with clock speeds running from 233 MHz through to 450 MHz.

Intel's 810 Chipset

This board features the 810 chipset from Intel. The 810 chipset is designed to reduce the cost and improve the multimedia capability of value PCs. The chipset features an integrated AGP (Accelerated Graphics Port) graphics controller which is optimized to produce smooth rendition of 2D and 3D video. Digital video output is supported so that the system can display on a TV or a flat-panel display with digital video input. The graphics controller improves performance and reduces cost by dynamically allocating a segment of active memory as video memory.

The 810 I/O chip (82801 I/O Controller Hub) makes a direct connection between the graphics system and the IDE controller and the PCI bus. It uses Accelerated Hub Architecture to effectively double the bandwidth between these components enabling more life like audio and video. It includes an integrated Audio-Codec controller (AC97) that lets the

processor more effectively decode sound generated by the integrated audio system or the integrated fax/modem. Finally, the P82802 Firmware Hub allows the system and video BIOS to be stored (eliminating the need for non-volatile CMOS memory) for faster execution, and provides a random number generator to enable strong encryption routines.

PC-100 Memory Module

The board has two DIMM sockets for the installation of 168-pin, 3.3V non-buffered DIMM memory modules. The DIMM memory modules must be installed with SDRAM memory chips. The board supports a memory bus of 100 MHz, so you can choose high-performance PC-100 memory modules. Each installed memory module can be populated with 8 MB up to 256 MB of memory, so a maximum total of 512 MB memory can be installed. The integrated video system uses a shared memory architecture so that you must reserve some of the installed memory as video memory using the system BIOS. You must install at least one memory module.

Highly Integrated Design

As well as the Intel 810 chipset, the P6ITW-A+ features other highly integrated silicon chips. The ITE LPC I/O controller handles the mainboard's I/O functions. The CMI 8738/PCI C3DX is a two-chip solution that provides an integrated audio and fax/modem system. The Chromtel CH7007A is a single chip dedicated to converting digital PC output to a TV format.

Built-in AGP 3D-Graphics

The Intel 810 chipset includes an integrated AGP controller that is optimized for smooth 2D and 3D video. The graphics system shares active memory and does not require dedicated video memory. Video is delivered through a regular 15-pin header, or as a low cost alternative to a monitor, the system can display on a regular TV set using either an RCA video out jack or an S-video mini-DIN port.

Built-in PCI 3D Sound

The Elite PCI Audio CMI 8738 is a single chip solution for PCI-bus 3D audio. The chip provides Sound Blaster 16-bit-compatible audio, plus support for Microsoft's DirectSound 3D specification and Aureal A3D interface. The sound ports include jacks for speakers, microphone and stereo in, and a game/MIDI port. The audio system supports full duplex operation and drivers are available for WIN 95/98 and WIN NT 4.0. The audio system can output sound to 4 loudspeakers and also supports SPDIF 24-bit digital sound input and output.

Built-in V.90 Fax/modem

The PCI C3DX chip is a single chip solution for value PC communications. The chip supports 56 Kbps transmission using the V.90 protocol. The chip is integrated with the built-in audio system to support voice as well as data transmissions.

Up-to-date Expansion Options

This is a full-sized ATX board with a full set of current technology expansion slots. The mainboard no longer supports the legacy ISA (Industry Standard Architecture) 8/16-bit slots. Instead, the board provides five 32-bit PCI (Peripheral Components Interconnect) slots, with each slot supporting Ultra DMA 66/33 and bus mastering. In addition, the board has an AMR slot. The AMR slot lets you install an AMR (Audio Modem Riser) card. Because the regulations regarding the use of modems is different from country to country, mainboard manufacturers can simply install a standard AMR slot which can be used by third-party Audio Modem Riser cards that have been certified for use in the local territory.

Integrated I/O

Using the ITE LPC I/O chip and the Intel 810 chipset, the board has a comprehensive set of integrated I/O ports. The I/O port array features PS/2 keyboard and mouse ports, a parallel port, two USB ports, S-video out mini-DIN port, digital video out RCA jack, a monitor port, a game/MIDI port, and three audio jacks. The mainboard has connectors for the installation of two serial ports (the serial ports are supplied on an extension bracket), an infrared port (for IrDA or ASKIR), and a fax/modem card. The mainboard includes connections for floppy diskette drives and two PCI IDE channels.

Keyboard Power On Feature

Using the system BIOS setup program, you can configure the system to turn on using a keyboard typed password. A green keyboard is not required.

Programmable Firmware

The mainboard includes Award BIOS which allows BIOS setting of CPU parameters. The fully programmable firmware enhances the system features and allows users to set power management, CPU and memory timing, LAN and modem wake-up alarms, and so on. The firmware can also be used to set parameters for different Celeron processor clock speeds so that you don't need to change mainboard jumpers and switches.

Suspend to RAM Feature

This mainboard features the suspend to RAM function. In a suspend to RAM, the system is totally powered down with the exception of the small current required to refresh the system memory. To resume from a suspend to RAM, press the power button (or use the hot keys or password if you have enabled a hot-key or password power on). The system will resume in just a few seconds, and it will appear in exactly the same state as it was before it was suspended to RAM.