

# Chapter 1: Introduction

## Welcome

---

Congratulations on your purchase of the P6BXT-A+ mainboard. This is a very special mainboard which allows you to install almost any kind of Intel Pentium-II/III processor. The P6BXT-A+ is a full-sized ATX board measuring 305x220mm and using 4-layer printed circuit board.

The P6BXT-A+ has a special design feature so that it includes a Pentium-II Slot-1 processor slot and a PPGA (Plastic Pin Grid Array) Celeron Socket-PGA370 processor socket. **This feature means that you can install the mainboard with either a Pentium-III cartridge, a Pentium-II cartridge, the SEPP (Single Edge Processor Package) Celeron cartridge, or one of the new generation PPGA Celeron cartridges.**

In addition, the mainboard supports a 66 MHz memory bus, or a 100 MHz memory bus, so you can use inexpensive 66MHz memory chips, or higher-performance PC-100 memory chips. The board is installed with an integrated PCI-3D sound system and has a full suite of I/O ports. Seven expansion slots are available for system development and hardware monitoring is supported.

This board allows complete flexibility. System integrators can choose the high-performance Pentium-II processor cartridge or the inexpensive PPGA Celeron processor according to the system requirements and the price/performance comparison of the two kinds of processor.

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,
- 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 P6BXT-A+ Mainboard
- ✓ 1 x Cable/Bracket Pack
  - Diskette drive ribbon cable
  - IDE drive ribbon cable
- ✓ This User's Manual
- ✓ Software Support CD-ROM Disc

### ***Optional Items***

1 x V 9.0 Fax/Modem Card

## Features

---

The key feature of this mainboard is the dual processor sockets which allow you to install any of the Pentium-III and Pentium-II processors including Slot1 cartridges SEPP Celerons and PPGA Celerons. In addition, this is a full-sized ATX mainboard with a full set of expansion slots for maximum development potential.

### ***Support for Pentium-III/Pentium-II Cartridges or PPGA Celeron***

The principal feature of this mainboard is that it can support three kinds of processors: Pentium-III cartridges, Pentium-II cartridges and SEPP or PPGA Celerons. Pentium-III cartridges feature 512K of level-2 cache memory with improved instructions to handle 3D audio and video. Speech recognition, MPEG2 motion picture encoding/decoding, and TCP/IP internet connections. The Pentium-III runs over a 100 MHz system bus and operate at clock speeds from 450 MHz up to 600 MHz or more.

The Pentium-II cartridges are very powerful processors which include 32K of internal level-1 cache memory and 512K of external level-2 cache memory. The first generation of Pentium-II cartridges ran over a 66 MHz system bus, but current Pentium-II cartridges run over a 100 MHz system bus and operate at clock speeds from 350 MHz up to 450 MHz or more. The slot-1 processor can also be used by the SEPP Celeron processors which can operate over a 66/100 MHz system bus and operate at clock speeds up to 500 MHz.

The new generation PPGA Celeron processors ship in the familiar square plastic package, and they install in a Zero Insertion Force (ZIF) socket called a Socket-370. The new Celeron processors are close to Pentium-II performance because they include a level-2 cache memory of 128K. However, they operate at a 66/100 MHz system bus and they currently ship a clock speeds of 466 MHz.

System assemblers can install either a Pentium-III or Pentium-II cartridge or the SEPP Celeron in the slot-1 processor slot. Alternatively, they can install a second generation PPGA Celeron in the Socket-370 processor socket. Assemblers can choose the processor they need to meet performance or price targets. You can configure the system for any of the supported processor clock speeds using the BIOS setup utility. It is not necessary to set switches or jumpers.

### ***Choice of Memory Options***

The board has three DIMM slots for the installation of 168-pin, 3.3V standard or registered SDRAM (Synchronous Dynamic Random Access Memory) memory modules. The system supports memory that has built-in error correction (EC), error correction code (ECC), or has no error correction.

If you are using a Pentium-III/PentiumII processor cartridge that operates over a 100 MHz system bus, you must install PC-100 compliant memory modules (memory that operates at 100 MHz). If you install the PPGA Celeron processor, you can install memory that operates at 66 MHz (you can install PC-100 memory if you wish, but the system will run the memory at 66 MHz).

You can install one, two or three modules. Each memory module can hold a maximum capacity of 128 MB of standard SDRAM chips, or 256 MB of registered SDRAM chips so maximum memory capacity is 384 MB of standard SDRAM memory or 768 MB registered SDRAM memory.

### ***Highly Integrated Design***

This mainboard uses the Intel 440BX chipset which includes the North Bridge 82443BX chip and the South Bridge 82371EB. The 82443BX provides automatic support for a 100 MHz or 66 MHz system bus frequency and memory bus frequency. It includes a memory controller with error correction support, an Accelerated Graphics Port (AGP) interface, and the PCI bus interface compliant with PCI Rev. 2.2 specifications.

The 82371EB South Bridge chip includes the ACPI (Advanced Configuration and Power management Interface) power management logic, the integrated PCI IDE interfaces (with Ultra DMA support) and the USB (Universal Serial Bus) ports.

### ***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.

### ***Optional Built-in Communications***

The mainboard has an integrated fax/modem connector. As an option, you can purchase a fax/modem extension bracket which connects the

line and telephone RJ11 sockets to the board. The fax/modem supports the V.90 protocol that allows transmissions at up to 56Kbps and is fully compatible with earlier transmission and error correction standards. It supports automatic fall back and caller ID.

#### ***Maximum Expansion Options***

This is a full-sized ATX mainboard that offers the maximum in system expansion. The board has a total of 7 expansion slots. The AGP slot can be used by an AGP graphics adapter. The four 32-bit PCI slots can be used by PCI expansion cards, and the two 8/16-bit ISA slots can be used by legacy ISA expansion cards. One of the PCI slots is shared with one of the ISA slots. This means that you can use either one of these slots but not both at the same time. With six usable slots, this mainboard can be installed with a full set of optional expansion cards.

#### ***Integrated I/O***

Using the Winbond W83977EF-AW I/O chip and the Intel BX 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, two serial ports, a monitor port, a game/MIDI port, and three audio jacks. Optionally, you can use the built-in mainboard header to add in an infrared port. The mainboard has two PCI-IDE channels and a floppy disk drive interface.

#### ***Hardware Monitoring***

The mainboard is installed with the GL520SM hardware monitoring chip. Using this chip and the monitoring software supplied with the system, users and system administrators can monitor critical parameters such as the CPU temperature, the fan speeds and so on. Hardware monitoring helps maintain the system and reduce maintenance costs and downtime.

#### ***Keyboard Power On Feature***

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

#### ***Programmable Firmware***

The mainboard includes Award BIOS that 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 processor clock speeds so that you don't need to change mainboard jumpers and switches.

### ***STR ( Suspend to RAM )***

The "Suspend To RAM" technology offers the 'On now" function which meets PC99 specification and provides the pure ' Green' power saving mode to the system. Under the STR status, the only power consumption is on DRAM and the system can be resumed to its previous operation status within 7 seconds by pressing the "power on" hot key or turning on the system. It meets the requirement of "easy to use" for the future computing environment.