Your Packard Bell Kourou 2 Motherboard

What is a motherboard?

The **Motherboard** is the most important part of your computer. This printed circuit board contains most of the basic components and circuitry that allow your computer to work and allows connection of other circuit boards that are responsible for the additional tasks.

A motherboard typically contains:

- The **CPU** (Central Processing Unit) or **Processor** slot: The CPU is the heart of your computer that makes all the necessary calculations that allow your computer to process data.
- The **chipset:** A chip or a set of chips that control the basic functions of your computer. The total performance of your computer is limited to the capabilities of the chipset.
- **Connectors**: The motherboard contains several connectors to allow connection of additional cards, drives, different types of memory, peripherals such as keyboard, mouse, printer and scanner.
- **BIOS** (Basic Input/Output System): The BIOS is software built into a chip that contains the basic information the computer needs to be able to function without accessing data from the hard disk drive. It allows the computer to start up, run some basic tests and controls the keyboard and the monitor.

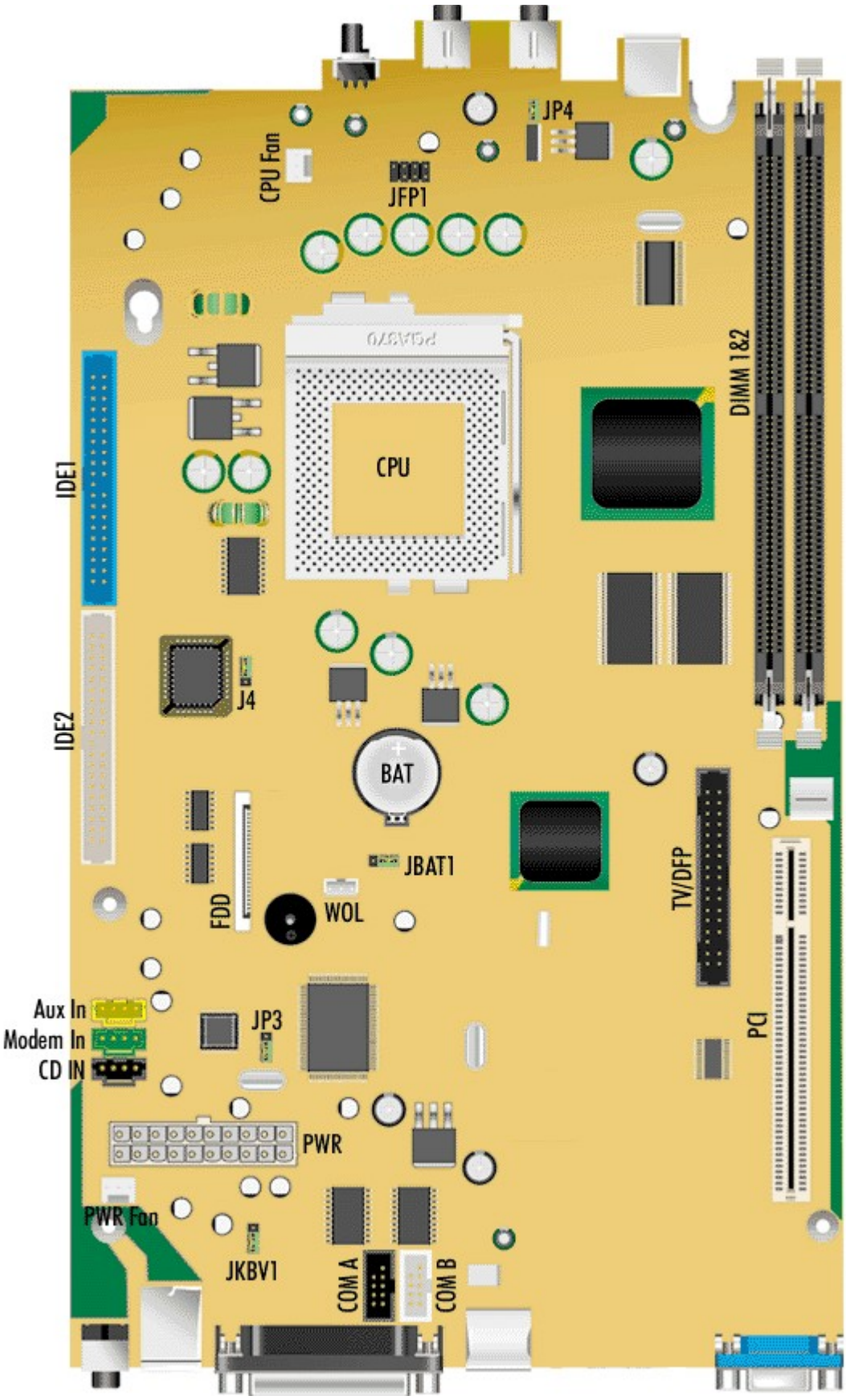
Some motherboards have also built-in sound and/or graphic controllers that allow digital sound processing and the output of video signals to the monitor. However, these functions are normally provided by separate circuit boards.

Your motherboard's main features

The motherboard built into your computer is the **Packard Bell Kourou 2**. Its main features are:

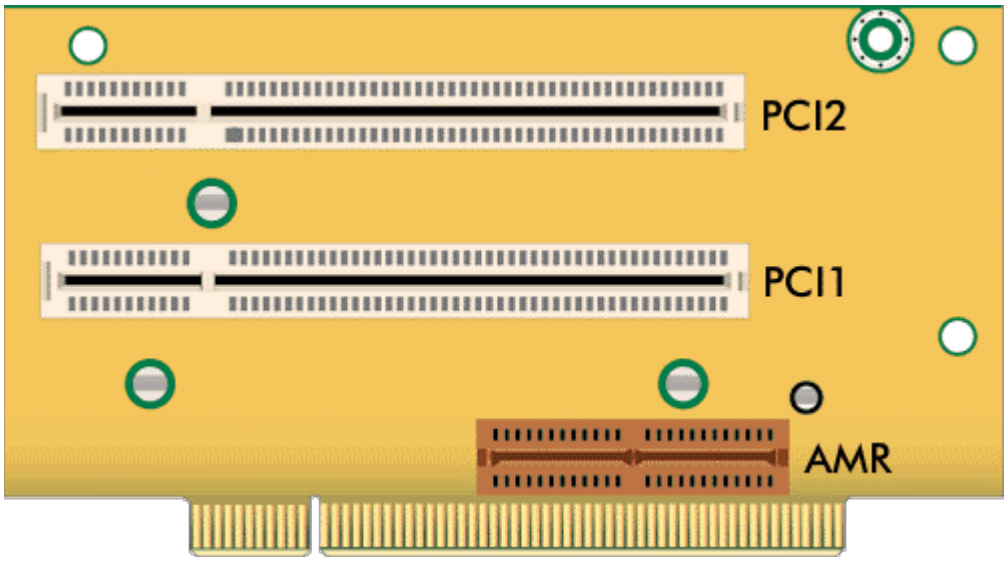
- Support for Intel Pentium III Coppermine processors in a Socket 370.
- Supports Up to 512MB of system memory in 2 DIMM memory sockets.
- Based on an Intel 810E chipset.
- Allows connection of 2 PCI extension cards and 1 AMR (Audio Modem Riser) card on an included riser card.
- Second generation graphics technology and software drivers integrated in the chipset, using Direct AGP (integrated AGP) to create vivid 2D and 3D effects and images.
- Integrated audio functionality through SigmaTel STAC9700 Codec.

Kourou 2 Motherboard Layout Diagram



Aux In	Auxiliary sound input header	FDD	Floppy disk drive connector	JP3	Onboard audio enable jumper
BAT	System Battery	IDE1	Primary IDE connector	JP4	Suspend-To-RAM enable jumper
CD In	CD-ROM Audio connector	IDE2	Secundary IDE connector	Modem In	Modem audio input connector
COM A	Internal serial connector COM A (optional)	J4	BIOS Recovery jumper	PCI	PCI Riser card slot, with Riser card supporting 3 PCI add-on cards
COM B	Internal serial connector COM B (optional)	JBAT1	Clear CMOS jumper	PWR	Power supply connector
CPU	Socket 370 processor connector	JFP1	Front panel connector	PWR Fan	Power fan connector
CPU Fan	CPU fan connector	JKBV1	Keyboard wake-up enable jumper	TV/DFP	TV-Out/ Digital Flat Panel daughter card connector
DIMM 1&2	DIMM slots 1 and 2			WOL	Wake-on-LAN header

Riser card layout



AMR	Audio Modem Riser slot	PCI1	PCI extension slot 1	PCI2	PCI extension slot 2

Jumpers And Connectors

Connectors

The Kourou 2 Motherboard features the following connectors:

- 2 PCI bus master slots on riser card.
- 1 AMR slot on riser card.
- PCI IDE, 2 channels, 4 drives.
- 2 internal serial port headers (COM A and COM B) (Preliminary).
- 1 DB9 serial port (COM A).
- 1 internal analogue line-level stereo input for CD-ROM.
- 1 modem sound input connector.

- 1 auxiliary input connector.
- 1 TV-Out/ Digital Flat panel connector.
- 1 Wake-on-LAN header.
- 1 Power connector.
- 1 Parallel port with ECP, EPP bidirectional mode.
- 1 PS/2 keyboard and 1 PS/2 mouse ports.
- 1 Stereo line-out audio connector.
- 1 Stereo line-in audio connector.
- 1 Mono microphone-in connector.
- 1 Stereo headphones connector.
- 2 USB (Universal Serial Bus) connectors.
- 1 Front USB header.
- 1 Floppy Disk Drive connector.
- 2 DIMM slots.
- 1 PGA370 CPU slot.
- 2 fan connectors.

Jumpers

Before changing a jumper's setting, make a note of its original position.

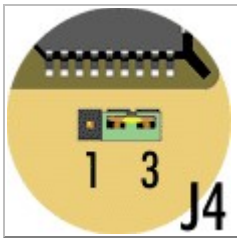
The Kourou 2 motherboard has several jumpers that allow you to configure your computer. Incorrectly setting these jumpers may cause serious problems. Re-configuration is only necessary if you want to:

- Reset CMOS settings;
- Update or restore BIOS settings;
- Enable or disable Suspend to RAM mode;
- Enable or disable keyboard wake-up;
- Install another sound card.

Changes to jumper settings should only be carried out by authorised service personnel and require advanced knowledge. Please beware that internal components can be damaged by electrostatic discharge. If you are not sure about making these changes, please contact our Technical Support or a service agent. Please refer to the motherboard layout diagram in this doument for the jumper block positions.

CAUTION: do not move any jumper with the system power on. This may seriously damage your motherboard. Always turn off the power and unplug the main power cord from the computer before changing a jumper. All the components in your computer can be damaged by static electricity (E.S.D. - Electro Static Discharge). Discharge yourself and any tool you use to ground (e.g. computer chassis) before touching or removing a component. Place removed components in antistatic bags.

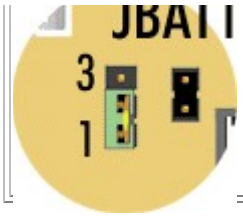
BIOS Recovery Jumper (J4)



POSITION	DESCRIPTION
1-2 set (default)	Normal operation (default)
2-3 set	Safe mode

Clear CMOS Jumper (JBAT1)

POSITION	DESCRIPTION
1-2 set (default)	Normal operation (default)

	2-3 set	Clear the current CMOS settings

If you wish to clear the CMOS data, turn off your system, wait for about 10 seconds, then move the jumper. Move the jumper back to the default position and restart the computer.

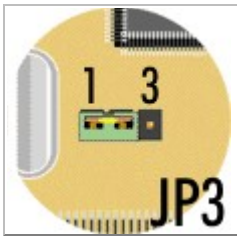
Suspend to RAM jumper (JP4)

	POSITION	DESCRIPTION
	Open	Suspend to RAM mode is disabled
	Close (default)	Suspend to RAM mode is enabled

Keyboard wake-up jumper (JKBV1)

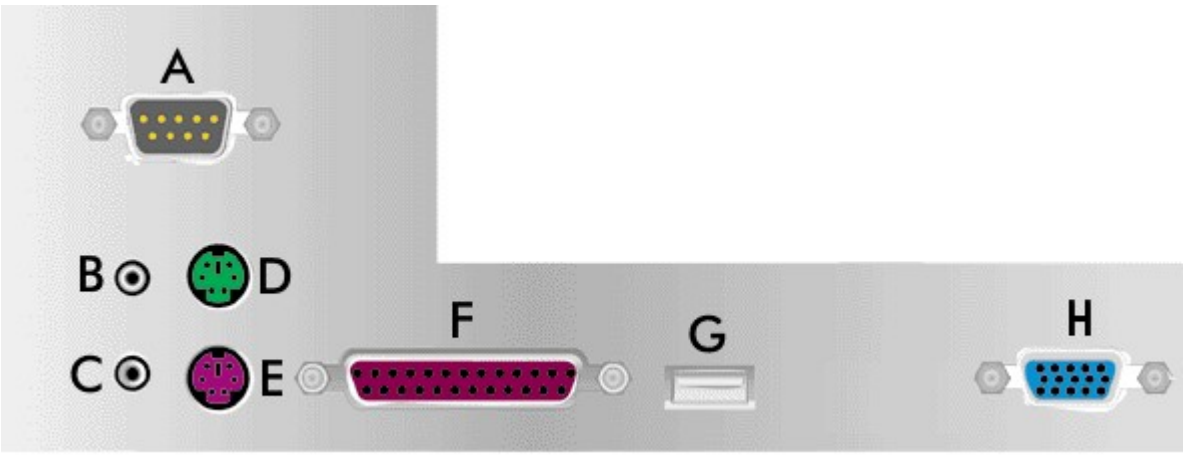
	POSITION	DESCRIPTION
	1-2 set	Keyboard wake-up is enabled
	2-3 set (default)	Keyboard wake-up is disabled

Onboard Audio enable jumper (JP3)

	POSITION	DESCRIPTION
	1-2 (default)	Onboard audio is enabled (default)
	2-3	Onboard audio is disabled. An additional sound card needs to be used.

Rear Panel Connectors

On the back panel of your *Packard Bell Spirit computer* you can find the following connectors:



A	*Serial port (COMA)*	To connect any serial device, such as a serial scanner, an organizer, etc...
B	*Stereo Audio Line-in connector*	To connect an audio source using a 3.5mm stereo plug
C	*Stereo Audio Line-out connector*	To connect to an audio output target, such as a speaker set or headphones, using a 3.5mm stereo plug
D	*PS/2 Mouse port*	To connect a mouse with a PS/2 connector. However, some mice connect to either the USB port or the Serial port.
E	*PS/2 Keyboard port*	To connect a keyboard with a PS/2 connector. However, some keyboards connect to the USB port.
F	*Parallel port (LPT1)*	To connect any parallel device. Typically a parallel printer or scanner.
G	*Backpanel USB port*	To connect any USB compatible device, such as a USB camera, USB keyboard, USB scanner, ... This port may be disabled on several models where the USB port on the front side of the computer is enabled.
H	*Analogue VGA video port*	To connect an analogue VGA monitor.

Front Panel Connectors

The connectors that can be found on the front side of your **Packard Bell Spirit** computer are the following:

J *Front panel USB port*. Here you can connect any USB device.

K *3.5mm mono microphone connector* to connect your (optional) microphone.

L *3.5mm stereo headphones connector*. The volume of the (non-included) headphones can be controlled by the volume knob on the front side of your computer.

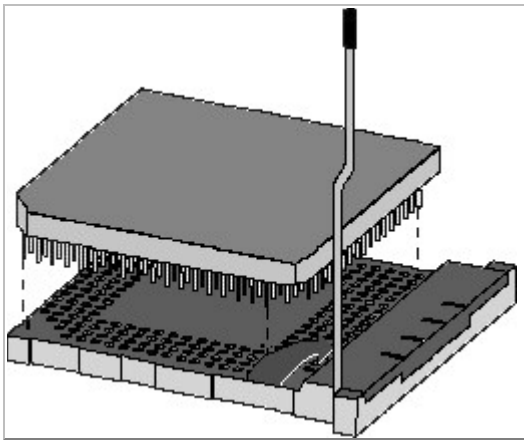
Upgrading your Motherboard

Before purchasing any upgrade element, please read the motherboard's specifications, as described in this chapter, to see what kind of elements are supported. Please protect your system's components against E.S.D. (ESD : ElectroStatic Discharge, commonly - Static electricity) whenever you open the system's chassis.

Processor upgrades

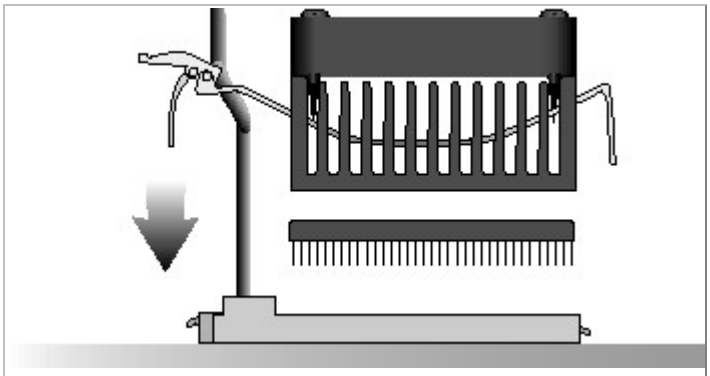
The microprocessor (CPU – Central Processing Unit) is the heart of your computer. It is a very delicate piece of equipment. Therefore, if you want to perform a CPU upgrade, please handle with utmost care. (Remember to protect the CPU and other internal components against E.S.D.) Your computer has been equipped with an Intel® Pentium® III or Celeron™ CPU with MMX™ technology. If you want to upgrade this CPU for enhanced performance, then please follow the steps below (procedures may vary slightly, depending on the type of CPU you have purchased):

Switch your computer off before opening the chassis!



Removal:

Disconnect the heatsink fan power connector from the motherboard socket (CPU FAN). Free the original processor by unclipping the retaining spring from the socket, and remove the heatsink. Pull the socket lever up to the vertical position and lift out the processor.



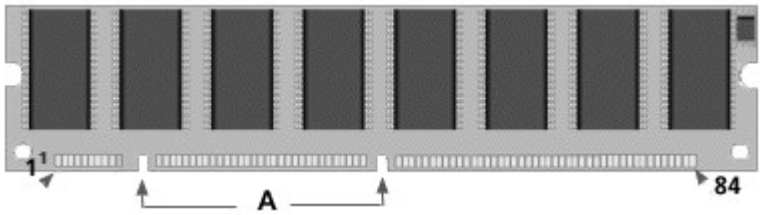
Fitting:

1. Place the new processor in the socket. With the lever in the vertical position, the CPU drops into place, if it does not do so, then check to see if the CPU is correctly positioned.
2. When the CPU is correctly in place push the socket lever back down to the horizontal position.
3. Place the Heatsink on the CPU, the retaining clips fix on the plastic tabs of the PGA370 socket , pull the clip lever up to fix the heatsink solidly in place (no thermal grease is needed).
4. Connect the power supply for the active heatsink to the CPU FAN connector.

Memory upgrades

System memory holds information until the CPU accesses it or routes it to a device. The memory of the motherboard described in this document can be upgraded using 1 or 2 DIMM modules. The Kourou 2 motherboard has two DIMM sockets and can hold up to 512MBytes. Please use only the DIMM modules as described in the specifications. DIMM modules only fit in one way as they have two notch keys (**A**) on the connector. Push the module gently down in the slot, the slot side levers will automatically swing up to the

vertical position. Memory is automatically detected, there is no need to change jumper settings after changing the memory configuration.



Replacing the Battery

A battery is installed on the motherboard, to ensure that your PC does not lose information when the power is turned off. This information includes date and time and some BIOS settings. With the system constantly turned off, the battery life is around three years. Its life will be extended if the system is used regularly. If ever you need to replace it, please ensure that you use the right battery (Lithium battery 3.3V, 100mAH, CR2032) and that it is correctly fitted (positive (+) side up).

If the battery is incorrectly replaced you may damage your motherboard.

Motherboard Specifications

Form Factor

- No standardised form factor, 29.5 x 17.7 cm.

CPU Support and cache

- Supports Intel® Pentium® III FC-PGA (Flip-Chip Pin Grid Array) Coppermine processors operating at 500/100, 533/133, 550/100, 600/100, 600/133, 650/100, 667/133, 700/100, 733/133, 750/100, 800/100, 800/133, 850/100, 866/133, 933/133 MHz and above.
- Supports Intel® Celeron™ PPGA processors operating at 366/66, 400/66, 433/66, 466/66, 500/66, 533/66, 566/66, 600/66, 633/66, 667/66, 700/66 MHz and above.
- Supports 66.6 MHz, 100 MHz and 133 MHz clock speeds.
- The processor is placed into a Socket 370.

Core Logic (Chipset)

- Intel® 810E chipset, consisting of 82810E Graphic Memory Controller Hub (GMCH) and 82801 I/O Controller Hub (ICH).
- The 82810E GMCH features:
  - Processor Host/Bus support (66, 100 and 133 MHz System Bus frequency, 32-bit system bus addressing, GTL+ I/O buffer).
  - Integrated DRAM Controller.
  - Integrated graphics controller (see paragraph Video and graphics).
  - Power Management functions (ACPI compliant, APIC Buffer Management, SMI, SCI and SERR error indication).
- The 82801 ICH features:
  - PCI rev 2.2 specification support:
    - supports PCI bus at 33 MHz.
    - supports up to 6 master devices on PCI.
    - 133MByte/sec maximum throughput.
  - Integrated IDE controller:
    - Supports PIO Mode 4 transfers at up to 14MB/s.
    - Supports Ultra DMA/33 mode transfers at up to 33MBytes/s and Ultra DMA/66 mode transfers at up to 66MBytes/s.
    - Supports the independent timing of up to 4 IDE devices.

- USB controller.
- AC'97 link for audio and telephony CODECs:
  - Read/write access to audio codec registers 00h-3Ah and vendor registers 5Ah-7Eh.
  - 16-bit stereo PCM output and input at up to 48kHz (Left and Right channels on slots 3 and 4).
  - 16-bit mono microphone input with or without mono mixing at up to 48kHz (Left and Right channels on slots 3, 4) - mono mix supports mono hardware AEC reference for speakerphone.
  - 16-bit mono PCM input, up to 48kHz from dedicated Mic ADC (slot 6) - supports speech recognition or stereo hardware AEC reference for speakerphone.
  - Supports passive PC_BEEP to speaker connection during POST (Power On Self Test).
- Interrupt controller based on two 82C59 chips
- Power management logic:
  - ACPI 1.0 compliant.
  - ACPI Defined Power States (S1, S3, S4, S5).
  - System Management Interface (SMI) generation.
  - Enhanced Direct Memory Access (DMA) controller.
- 256-byte battery-backed CMOS SRAM Real Time Clock (3 Volts lithium battery - CR2032).

System Memory

- Memory type and size are automatically detected.
- Supports up to 512MB with 128-bit technologie or up to 256MB with 64-bit technology in one or two 168-pin DIMM sockets.
- Supports 66MHz or 100MHz DIMMs with gold-plated contacts only. Use unbuffered 60ns, CAS latency 2/3, 3.3V SDRAM DIMMS, single or double sided 8MB, 16MB, 32MB, 64MB, 128MB or 256MB.
- ECC memory checking is not supported.
- Supports Suspend To Ram.

Video and graphics

- The functionality related to video and graphics is provided by the integrated graphics controller of the 82810E GMCH chip. With this second generation graphics technology and the included software drivers it features:
  - Direct AGP (integrated AGP) for vivid 2D and 3D effects and images.
  - 3D Graphics visual enhancements.
  - 3D Graphics texturing enhancements.
  - Digital video output: 85 MHz Flat Panel Monitor Interface or Digital Video Output for use with an optional TV encoder.
  - 2D graphics: resolutions of up to 1600x1200 pixels in 8-bit colour with a 85 Hz refresh rate.
  - Supports Data Buffering.
  - Hardware Motion Compensation to improve soft DVD Video quality.
  - Digital video port to enable connection to traditional television sets or to digital flat panel displays.
  - 4MB of dedicated display cache video memory running at 133MHz.

BIOS

- AMI BIOS featuring:
  - Setup utility in English language.
  - 4Mbits Flash Device with boot block.
  - POST (Power On System Test).
  - APM (Advanced Power Management).
  - Plug and Play.
  - Year 2000 compliant.
  - DMI support (Desktop Management Interface).
  - BIOS Recovery and Password Clear.
  - Advanced Configuration and Power Interface.
  - PC98 compliant.

Input/Output Controller

- The motherboard integrates a Winbond W83627HF-AW I/O controller with the following features:
  - PS/2 Keyboard and Mouse controller with support for 3D mouse and Internet Keyboard.
  - 16-byte FIFO Floppy disk controller supporting up to four 3,5 or 5,25 inch devices with 360K, 720K, 1.2M and 1.44M-bytes.
  - 1 serial port (COM A) + 1 serial connector (COM B), both 16C550 Fast UART compatible.
  - 1 25-pin bi-directional parallel port supporting SPP (Standard parallel Port), EPP (Enhanced Parallel Port), and ECP (Extended Capabilities Port) modes.
  - 2 USB ports.
  - 1 MIDI/Game Port.
  - Hardware Status Monitoring:
    - Fan speed monitoring and control.
    - Built-in case open detection circuit.
    - Watchdog comparison of all monitored values.

Audio features

- The functionality related to sound is provided by the integrated SigmaTel STAC9700 Codec, featuring:
  - High performance technology.
  - Energy saving power down modes.
  - 18-bit full duplex stereo ADC and DACs.
  - AC-Link protocol compliance.
  - Low-noise differential CDROM input.
  - The Codec can control the bus, in compliance with AC97 Bus specification rev 2.1.
  - Pin compatible with the STAC9704/21.
  - SigmaTel Surround (SS3D) Stereo Enhancement.
  - Five analogue line-level inputs.
  - 48-pin TQFP.
  - SNR> 90dB through Mixer and DAC.
  - +3.3V and +5V operation.

Packard Bell.	*Updates to software and hardware components of your computer are made regularly. Therefore some of the instructions, specifications and pictures in this documentation may be slightly different from your particular situation.* *Packard Bell NEC reserves the right to revise or make changes or improvements to this product or documentation at any time without obligation to notify any person of such revisions or improvements.*