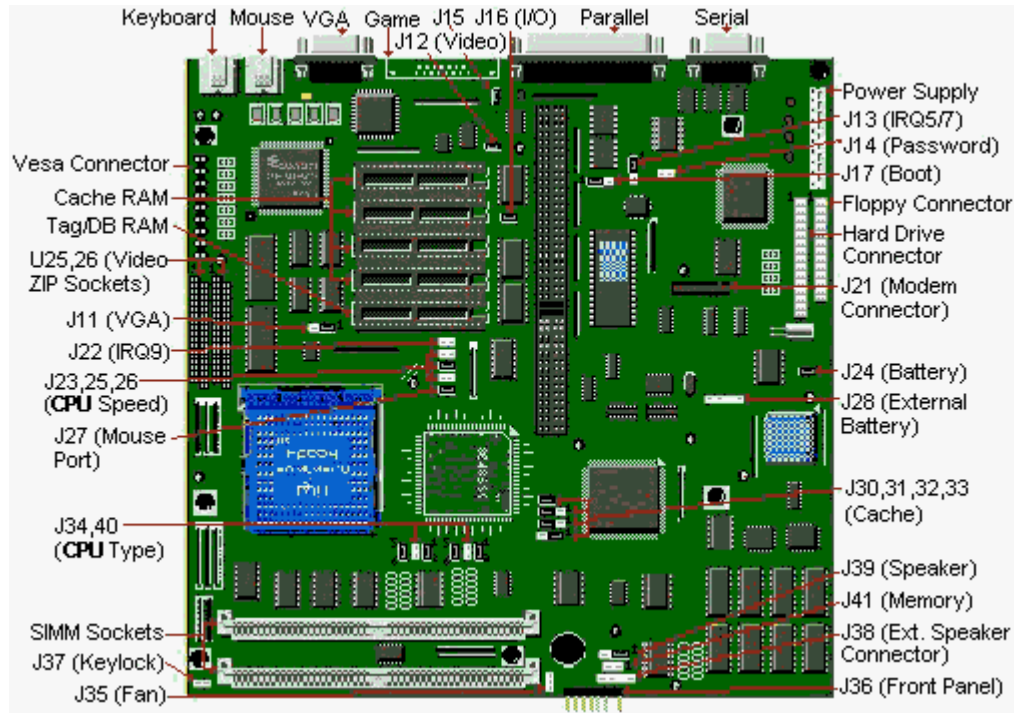# Packard Bell 430/440/440T M/Board

Some PB430/PB440 systems have been shipped with built-in game port (J4), however, the system BIOS does not support it. To disable the game port, remove the J15 jumper. The J15 jumper is located next to the game port.

Specification

- **Battery :** 3.6V DC NiCad soldered on motherboard.
- **BIOS :** 128 KB - Phoenix BIOS V1.01.06E
- **Bus Architecture :** ISA based system bus.
- **Cache :** Write Back: 8 KB Internal (Level 1) Cache External (Level 2).
- **CPU :** Intel 486 processor.
- **Interfaces :**
  - 1 DB-25 Parallel.
  - 1 RS232 DB-9 Serial.
  - 1 15-pin VGA.
  - 1 PS/2 Mouse.
  - 1 PS/2 Keyboard.
  - 1 15 pin Game (only with CL5424 Systems).
- **RAM :** 4MB Standard on Motherboard 64MB Maximum.
- **Speaker :** Piezoelectric soldered on motherboard.
- **UART :** Compatability Compatible with the 16C450 UART.
- **Video :** Built in Cirrus Logic 5424 or 5428.

Jumpers

Jumper	Description	Setting	Designation
J11	Onboard VGA	2-3 1-2	Enabled Disabled

J12	Colour/Monochrome	Closed Open	Colour Mono
J13	LPT1 IRQ Select	1-2 2-3	IRQ 7 IRQ 5
J14	Password Clear	Open Closed	Normal Clear Password
J15	Game Port	Closed Open	Enabled Disabled
J17	Boot Block Select	1-2 2-3	Normal Boot Block
J22	Video IRQ 9 Enable	Open Closed	Disabled Enabled
J27	Mouse Port	Closed Open	Enabled Disabled
J39	On-Board Speaker	2-3 1-2	Enabled Disabled
J41	On-Board Memory Disable	Open Closed	Disabled Enabled

Battery

Use a 3.6 Volt lithium battery. Remove the shorting cap on jumper J24. Then attach the battery to connector J28, positive to pin 1, negative to pin 4.

Cache Upgrade

- Cache memory on a PB430 can be upgraded to 128kB by installing four 32kx8 cache chips (at locations U15, U19, U24 and U30) and one 32kx8 tag SRAM chip (at location U35)
- Cache memory on a PB430 can be upgraded to 512kB by installing four 128kx8 cache chips (at locations U15, U19, U24 and U30) and one 128kx8 tag SRAM chip (at location U35)
- Cache chips may be 25ns, 20ns or 15ns while the tag SRAM can be either 20ns or 15ns. When using 15ns cache chips, a 15ns tag SRAM should be used as well.

	J30	**J31**	**J32**	**J33**
32k	Open	1-2	1-2	1-2
128k	1-2	2-3	2-3	1-2
512k	1-2	2-3	2-3	2-3

CPU Upgrades

Jumpers	J23	J25	J26	J40	J40	J40	J34	J34	J34
Pins	1-2	1-2	1-2	1-2	3-4	5-6	1-2	3-4	5-6
486SX20	In	Out	Out	Out	In	Out	Out	Out	In
486SX25	Out	In	In	Out	In	Out	Out	Out	In
486SX33	Out	In	Out	Out	In	Out	Out	Out	In

486SX/2-50 486DX-25 486DX/2-50 DX2ODPR50 DX4ODPR75 P24T-62Mhz	Out	In	In	In	Out	In	In	Out	In
486DX-33 486DX/2-66 DX2ODPR66 DX4ODPR100 P24T-83Mhz	Out	In	Out	In	Out	In	In	Out	In
80487SX-25 DX2ODP50 DX4ODP75	Out	In	In	In	Out	In	Out	In	Out
80487 SX-33 DX2ODP66 DX4ODP-100	Out	In	Out	In	Out	In	Out	In	Out

Note - For P24T upgrades (Intel Pentium Overdrive Processor PODP 5V), the BIOS must be updated to ID 21. The current BIOS version appears on the screen immediately after switching on the computer.

Memory Upgrades

- Use Fast Page Mode DRAM SIMMS. This motherboard does NOT support EDO DRAM SIMMS!
- SIMM speed must be 80ns or 70ns.
- The SIMMS are 72-pin and can be x32 or x36. The motherboard design does not require parity checking.
- The board comes with 4MB soldered onto the motherboard, and will take 4/8/16/32 MB simms up to a maximum of 64MB.

Notes -

- The system will not correctly recognize the total amount of memory if an 8MB SIMM module is installed at Bank 2.
- When two 32 MB SIMMS are installed, the Surface Mount memory needs to be disabled. This is done by jumper J41 (On Board Memory Disable).

Speaker

Use a standard 8 ohm, 1/2 watt computer speaker. Move the cap on jumper J39 to pins 2 and 3, and attach the speaker to connector J38, pins 1 and 4.

Video Memory Upgrade

There are two versions of the PB430 motherboard. One has the CL 5424 video chip set and the other has the CL 5428 video chip set.

- A PB430 with a CL5424 has 512 kB of video memory which can be upgraded to 1 MB.

- A PB430 with a CL5428 has 1 MB of video memory which can be upgraded to 2 MB.

The best way to establish which video chip is in your computer is by opening the case. A PB430 with a CL 5424 chip will only have one so-called Zip Socket. A PB430 with a CL 5428 chip will have two of these sockets. Another indication is the availability of a game port. The PB430 with the CL 5424 video chip MAY have a game port, the PB430 with the C 5428 does NOT have a gameport.

- Video memory on the PB430 with a CL-5424 chip is upgradeable to 1 MB by installing a 256k x 16 Fast Page Mode DRAM ZIP (symmetrical, CAS line) at location U26.
- The PB430/440/440T with a CL 5428 chip is upgradeable to 2 MB of video memory by installing two 256k x 16 Fast Page Mode DRAM ZIPs (symmetrical, CAS line) at locations U25 and U26.