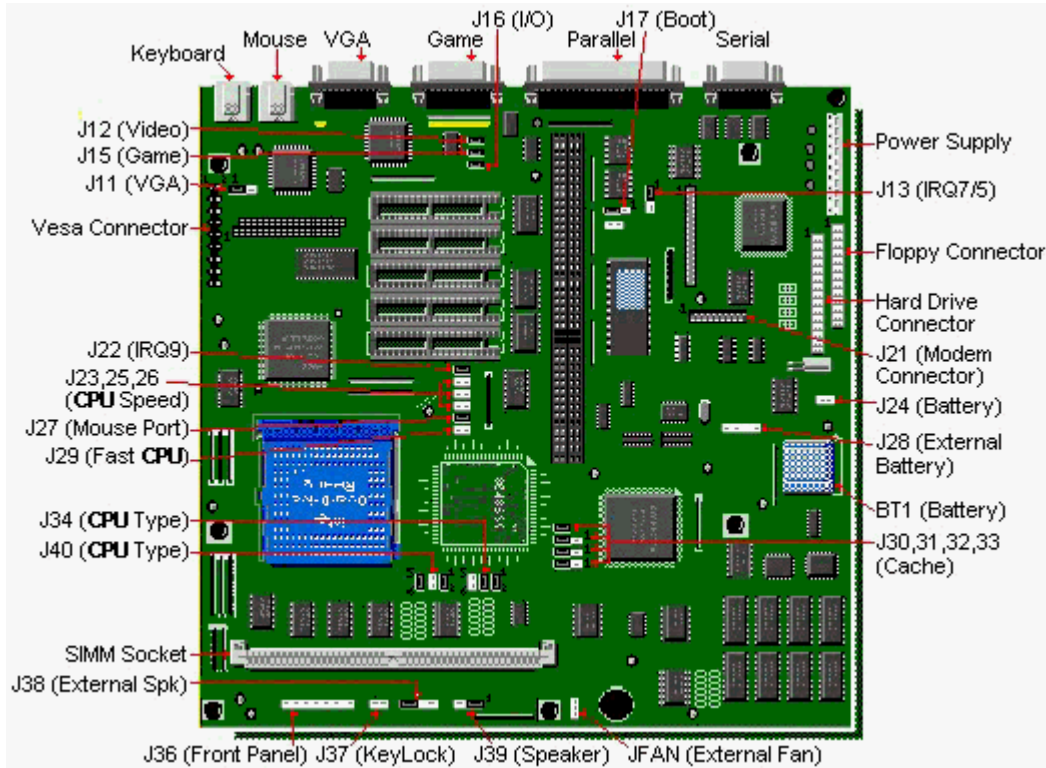


Packard Bell 410/420/420T M/Board



Specification

- **Battery** : 3.6V DC NiCad soldered on motherboard.
- **BIOS** : 128 KB - Phoenix BIOS V1.01.14E
- **Bus Architecture** : ISA based system bus.
- **Cache** : Write Back 8 KB Internal (Level 1) Cache External (Level 2) 0 - 512KB.
- **CPU** : Intel 486 processor.
- **Interfaces** :
 - 1 X DB-25 Parallel.
 - 1 X RS232,DB-9 Serial.
 - 15-pin VGA.
 - PS/2 Mouse.
 - PS/2 Keyboard.
 - 15 pin Game.
- **RAM** : 0 MB or 4 MB Standard on Motherboard 32 MB or 36 MB Maximum.
- **Speaker** : Piezoelectric soldered on motherboard.
- **UART** : Compatible with the 16C450 UART.
- **Video** : Built in Headland Technologies controller.

Jumpers

Jumper	Description	Setting	Designation
J11 (JVGAS)	Onboard VGA	2-3 1-2	Enabled Disabled
J12 (JVD)	Colour/Monochrome	Closed Open	Monochrome Colour

J13 (JIRQ5/7)	LPT1 IRQ Select	1-2 2-3	IRQ7 IRQ5
J15 (JGAME)	Game Port	Closed Open	Enabled Disabled
J16 (JIO)	On-Board I/O Controller	Closed Open	Enabled Disabled
J17 (JBOOT)	BIOS Boot Block	2-3 1-2	Normal Boot From Boot Block
J22 (JIRQ9)	Video IRQ9	Open Closed	Disabled Enabled
J24 (JB8S)	On-Board Battery	Closed Open	Enabled Disabled
J27 (JMRQ)	Mouse Port	Closed Open	Enabled Disabled
J29** (JCAHS)	CPU Speed	Open Closed	33Mhz 33Mhz
J39 (JSPKS)	Onboard Speaker	2-3 1-2	Enabled Disabled

**If external cache is installed and computer is in de-turbo mode, having J29 closed will result in an irregular speed greater than 8 Mhz.

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

The chips may be 25ns, 20ns, or 15ns while the Tag SRAM can be either 20ns or 15ns. The Cache and TAG RAM are either 28-pin for 32KB or 128KB of cache, or 32-pin for 512KB of cache. The PB410 uses the same cache chips as the PB430.

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

CPU Upgrades

1. Revision C.0 motherboards may have the CPU installed in the upgrade socket (U45) instead of the CPU socket (U47), and will have to be removed in order to upgrade.

2. This motherboard will accommodate the P24T processor. Upgrade the BIOS to 1.01.24 or 1.01.25 before installing the P24T.

The DX4-120 CPU requires a 486 system to be able to run at 40 MHz clock speed. This motherboard will not run at that speed. However, they will run at 33 MHz which will yield 100 MHz DX4 speed.

	Rev B.0/C.0			Rev B.0		Rev C.0					
U45	J23 1-2	J25 1-2	J26 1-2	J34	J34	J34 1-2	J34 3-4	J34 5-6	J40 1-2	J40 3-4	J40 5-6
None	-	-	-	1-3	2-4	Out	In	Out	In	Out	In
486SX25	Out	In	In	1-3	2-4	Out	Out	In	Out	In	Out
487SX25	Out	In	In	1-3	2-4	Out	In	Out	In	Out	In
DX2ODP50 (ODP486-25) or DX4ODP75	Out	In	In	1-3	2-4	Out	In	Out	In	Out	In
DX2ODPR50 (ODPR486-25) P24T 63MHz or DX40DPR75	Out	In	In	3-5	4-6	In	Out	In	In	Out	In
486DX25	Out	In	In	3-5	4-6	In	Out	In	In	Out	In
486SX33	Out	In	Out	1-3	2-4	Out	Out	In	Out	In	Out
487SX33	Out	In	Out	1-3	2-4	Out	In	Out	In	Out	In
DX2ODP66 (ODP486-33) or DX4ODP100	Out	In	Out	1-3	2-4	Out	In	Out	In	Out	In
DX2ODPR66 (ODPR486-33) P24T 83MHz or DX4ODPR100	Out	In	Out	3-5	4-6	In	Out	In	In	Out	In
486DX33	Out	In	Out	3-5	4-6	In	Out	In	In	Out	In
486DX2-50	Out	In	In	3-5	4-6	In	Out	In	In	Out	In
486DX2-66	Out	In	Out	3-5	4-6	In	Out	In	In	Out	In

RAM Upgrades

0 MB or 4 MB Standard on Motherboard 32 MB or 36 MB Maximum. The SIMM's are 256k/1MB/2MB/4MB/8MB 72-pin and can be x32 or x36. SIMM speed must be 80ns or faster. The motherboard design does not require parity checking, hence x32 SIMMs can be purchased.

Note - The motherboard with 4MB surface mount memory will not accept a 2MB SIMM.

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

Video memory is upgraded by installing a 256KBx16 70ns or 80ns DRAM ZIP at location U20. The ZIP needs to be ASYMMETRICAL (Write Enabled). This DRAM ZIP is not the same chip used for PB430/440/440T upgrades.

If the Motherboard had a DRAM chip at location (U22) the motherboard has 1MB installed. If there is not a chip at Location (U22), insert a 256KBx16 ZIP at location (U20) to upgrade the video memory to 1MB.

Check to make certain that all the legs on the chip are properly seated in the socket before pushing them in, or the chip will be damaged.