



Developer Note

Macintosh PowerBook 145B



Developer Note

Developer Press

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About This Developer Note

This document describes the Macintosh PowerBook 145B computer, emphasizing those features that are new or different from other Macintosh PowerBook computers. It is written primarily for experienced Macintosh hardware and software developers who want to create products that are compatible with these new computers. If you are unfamiliar with Macintosh computers or would simply like more technical information, you may want to read the related technical manuals listed in the following section.

Supplementary Documents

To supplement the information in this document, you might wish to obtain related documentation such as *Guide to the Macintosh Family Hardware*, second edition; *Designing Cards and Drivers for the Macintosh Family*, third edition; and *Inside Macintosh*. For detailed information about the Motorola 68030 microprocessor used in these computers, refer to the *MC68030 Enhanced 32-Bit Microprocessor User's Manual*. All of these documents are available through APDA.

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Conventions and Abbreviations

This developer note uses typographical conventions and abbreviations that are standard in Apple publications.

Typographical Conventions

Computer-language text—any text that is literally the same as it appears in computer input or output—appears in `Courier` font.

Standard Abbreviations

Standard units of measure used in Apple reference books include:

A	amperes	MB	megabytes
GB	gigabytes	MHz	megahertz
Hz	hertz	ms	milliseconds
K	1024	ns	nanoseconds
KB	kilobytes	V	volts
mA	milliamperes	W	watts

Standard abbreviations used in Apple reference books include:

$\$n$	hexadecimal value n
AC	alternating current
ADB	Apple Desktop Bus
ASC	Apple Sound Chip
ASIC	application-specific integrated circuit
CLUT	color look-up table
DAC	digital-to-analog converter
FSTN	film supertwist nematic (a type of LCD)
IC	integrated circuit
LCD	liquid crystal display
MMU	memory-management unit
PSRAM	pseudostatic RAM
RAM	random-access memory
RAMDAC	random-access memory, digital/analog converter
ROM	read-only memory
RGB	red-green-blue (a video display system used by Apple computers)

P R E F A C E

SCSI	Small Computer System Interface
SVGA	super VGA (a video display system used with PC-type computers)
SWIM	Super Woz Integrated Machine
TFT	thin film transistor (a type of LCD)
VGA	video graphics adapter (a video display system used with PC-type computers)
VRAM	video RAM

Macintosh PowerBook 145B

The Macintosh PowerBook 145B computer is physically identical to the PowerBook 145 computer except that the entire 4 MB of built-in pseudostatic RAM (PSRAM) is now soldered to the secondary logic board (daughterboard). This change frees the RAM expansion slot and allows users to add a RAM expansion card without replacing the 2 MB of RAM that resided on an expansion card in the PowerBook 145.

This developer note describes the major features of the Macintosh PowerBook 145B computer, emphasizing compatibility issues and expansion opportunities for developers.

IMPORTANT

Only the major differences between the PowerBook 145B and the PowerBook 145 are described in detail here. For a complete understanding of the PowerBook 145B computer, refer to the *Macintosh PowerBook 145 Developer Note* and the *Macintosh PowerBook 140 and Macintosh PowerBook 170 Developer Note*, both available from APDA. ▲

Features

The major features of the Macintosh PowerBook 145B computer are:

- Microprocessor: Motorola 68030 running at 25 MHz. A 16 MHz power saving mode can be selected by the user.
- Read-only memory (ROM): 1 MB.
- Random-access memory (RAM): 4 MB of pseudostatic RAM (PSRAM).
- RAM expansion: a RAM expansion slot accommodates 2 MB or 4 MB RAM expansion cards, for a total of 8 MB of RAM.
- Liquid crystal display: FSTN LCD, 640 x 400 pixels, with adjustable backlighting.
- Floppy disk: one internal 1.4 MB Apple SuperDrive with Super Woz Integrated Machine (SWIM) interface.
- Hard disk: one internal 2.5-inch SCSI hard disk drive. Disk capacities of 40 MB and 80 MB are offered.
- I/O (input/output): one HDI-30 connector for external SCSI devices, one 4-pin mini-DIN ADB port, two 8-pin mini-DIN serial ports, and audio input and output jacks.
- Sound: enhanced Apple Sound Chip (ASC) audio circuitry provides sound output through the built-in speaker or optional headphones. Sound input is available with an optional external microphone.
- Keyboard: built-in keyboard with integral 30-mm trackball.
- Modem: internal 20-pin connector for an optional modem card. This slot accepts the Macintosh PowerBook Fax/Data Modem and compatible third-party serial modems. The PowerBook 145B does not support the Macintosh PowerBook Express Modem.

- Battery: a rechargeable NiCad battery is included. A 3 V lithium battery provides backup power for the real-time clock and parameter RAM when the main battery is removed.
- Power supply: an external wall-mounted recharger/power adapter is included.
- Weight: 6.8 pounds.
- Size: 11.3 inches wide, 9.3 inches deep, and 2.2 inches high.

Compatibility Issues

This section highlights key areas you should investigate in order to ensure that your products work properly with the PowerBook 145B.

Modem Slot

The Macintosh PowerBook 145B modem slot accepts the Macintosh PowerBook Fax/Data Modem or any serial modem compatible with the PowerBook 100, 140, 145, or 170. For detailed information about designing serial modems for PowerBook computers refer to *Designing Cards and Drivers for the Macintosh Family*, third edition.

The PowerBook 145B does not support the Macintosh PowerBook Express Modem.

RAM Expansion Slot

The RAM expansion slot is compatible with RAM expansion cards meeting Apple design specifications for the Macintosh PowerBook 140 and 170. Refer to *Designing Cards and Drivers for the Macintosh Family*, third edition, for mechanical and electrical design guidelines.

Note

Because the PowerBook 145B contains 4 MB of built-in RAM, and the maximum RAM that can be addressed is 8 MB, the largest RAM expansion card that can be fully utilized is 4 MB. If you install a 6 MB or larger RAM expansion card, the additional RAM will be unusable. ♦

Identifying the PowerBook 145B

The correct method for software to identify the Macintosh model it is running on is by using the Gestalt Manager routines described in *Inside Macintosh*.

The `gestaltMachineType` value returned by the PowerBook 145B is 54, the same as the PowerBook 145. There is no way for software to differentiate between the two models. As discussed in *Inside Macintosh*, applications should not make decisions based on the machine type, but should use the appropriate Gestalt Manager routines to determine what features are available at runtime.