

Chapter 1 Introduction

The introduction contains a brief description of the Macintosh Portable, including performance features, appearance, peripherals, and add-ins. ▪

1.1 Features

The Macintosh Portable is a full-featured, portable computer designed to meet a wide range of business and personal needs; it is a portable evolution of the Macintosh SE. The Macintosh Portable retains all of the Macintosh SE characteristics and adds several new characteristics for both portability and performance.

Figures 1-1 and 1-2 and Table 1-1 provide a brief summary of some key features of this new machine. Subsequent chapters provide further detail.

■ **Figure 1-1** The Macintosh Portable Feature Summary

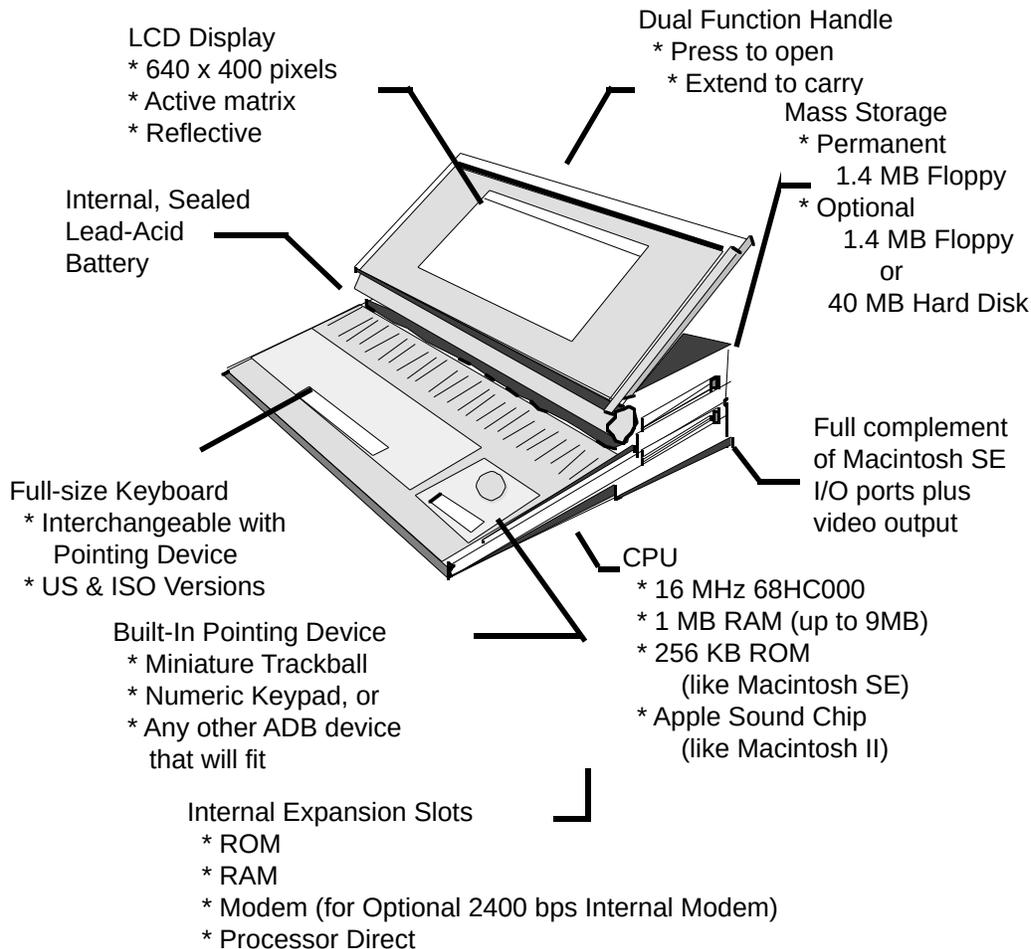
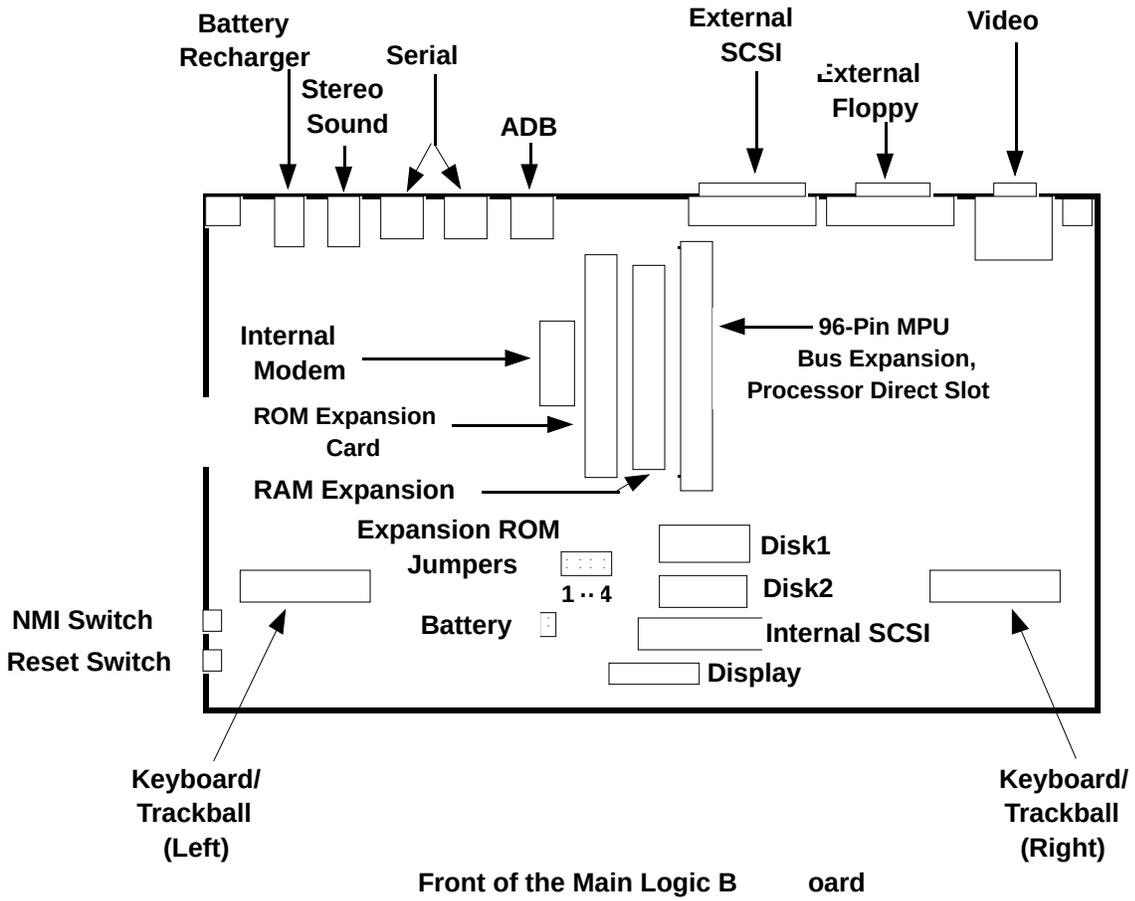


Figure 1-2 I/O Ports and Connectors on the Main Logic Board

Rear of the Main Logic Board



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Table 1-1 The Macintosh Portable Specifications

Characteristic	Specification
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CENTRAL PROCESSING UNIT (CPU):

16-bit, CMOS 68HC000, 16 MHz (twice Macintosh SE speed and without video contention), 1 wait state

OPERATING SYSTEM (OS):

Enhanced Macintosh SE ROM

STANDARD MAIN MEMORY:

1MB RAM, 256 KB ROM

MEMORY EXPANSION:

Main memory (RAM) is expandable to 2 or 5 MB by using internal expansion cards (1 or 4 MB). ROM expansion space for Apple use in ROM revision and for international character sets is 1 MB, and for developer use is 4 MB (see Chapter 3, Figure 3-1.)

MASS STORAGE:

Built-in 1.4 MB floppy disk drive

External floppy disk drive port

Removable/optional second internal 1.4 MB floppy disk drive

Optional internal low power SCSI hard disk, also external SCSI port

RAM DISK:

Ability to install system and application software in battery-backed-up RAM so that the machine is capable of functioning without resorting to the optional disk drive. This feature will provide a more rugged, lighter weight solution to portable applications, with longer battery operation and much faster access.

DISPLAY:

Flat-panel, 9.8" diagonal, active matrix reflective LCD, 640 x 400 pixels,

0.33 mm dot pitch, variable tilt

SOUND:

Apple stereo sound chip (same as Macintosh II)

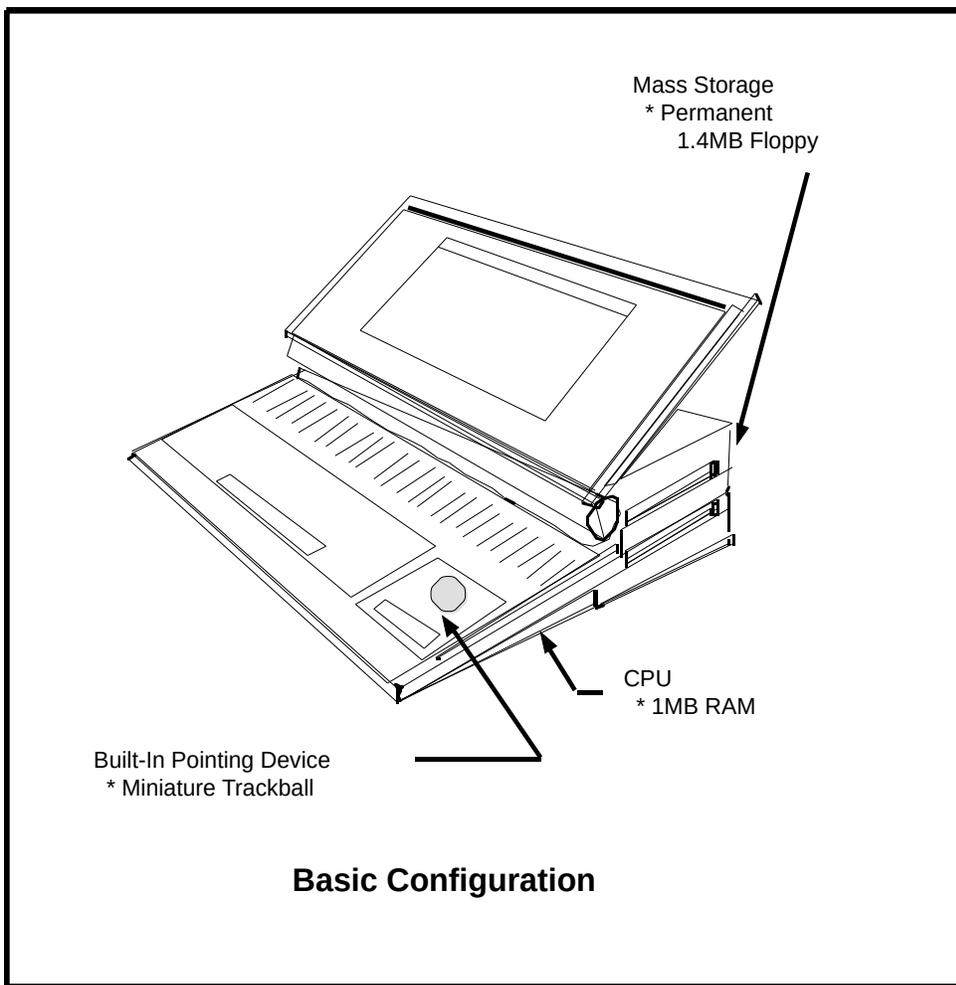
■ **Table 1-1** The Macintosh Portable Specifications (Continued)

Characteristic	Specification
I/O PORTS:	<ul style="list-style-type: none"> DB-19 external floppy disk DB-25 SCSI Mini DIN-4 Apple Desktop Bus port Two Mini DIN-8 serial ports DB-15 for external video 96-pin Euro-DIN expansion interface (not compatible with Macintosh SE) Stereo audio phone jack Battery recharger
INPUT DEVICES:	Built-in keyboard. Built-in trackball replaceable by optional keypad. (The keypad or trackball may be positioned on either side of the keyboard—right side is standard.) Low-power Apple Desktop Bus mouse (optional) plugs into ADB port at the rear of the machine.
OPTIONAL INTERNAL MODEM:	300/1200/2400 bps (AT command set compatible)
WEIGHT:	14 lbs. (minimum configuration) up to 17 lbs. (hard disk option, 5 MB RAM, internal modem option)
SIZE:	15.2" wide x 13.75" deep x 2" to 4" thick (wedge shaped)
SHOCK:	The unit can withstand a 50 G, 12 millisecond shock pulse in any axis while non-operating. This is true of all configurations, for example, with or without a hard disk.
BATTERY USE:	<ul style="list-style-type: none"> Internal, sealed lead-acid battery provides 8 hours normal use (single floppy configuration), varies dependent on drive usage. Rechargeable overnight (8 hours) using AC power adapter Battery function is required during operation from AC power RAM contents are retained during main battery replacement

Fundamentally, the Macintosh Portable is designed to be rugged and portable, not merely transportable. The Macintosh Portable customer is expected to be anyone who wishes to use a Macintosh away from its usual environment (classroom, office, laboratories), or to move the Macintosh more often than is practical in typical desktop configurations (plugged into an AC wall outlet). Examples of the Macintosh Portable customer are mobile business professionals (for example, auditors, field sales, and field service people) and students.

■ **Figure 1-3** The Macintosh Portable Standard Configuration

Basic machine—1 MB RAM, one 1.4 MB floppy disk drive



1.2 Optional additions

The following are optional items:

- 2400 bps domestic modem kit (internal, user installed) *
 - 1 MB RAM card (to make a total of 2 MB) *
 - second internal 1.4 MB floppy disk drive
 - 40 MB internal, one-half height, low-power hard disk drive
 - Low-power ADB mouse
 - Numeric keypad
 - International modem
 - External video adapter (see “Peripherals” later in this chapter)
- * *Cards for internal connectors*

1.3 Internal expansion interfaces

The main logic board has mounted on it five internal connectors for add-in capabilities (see Figure 1-2). These connectors may be listed by function as

- ROM upgrade (4 MB of address space available to you)
- RAM expansion (up to 8 MB of address space available)
- Modem
- Processor direct expansion slot
- Internal SCSI (34-pin)

One connector is for ROM upgrade (see the memory address map in Chapter 3, Figure 3-1) and a second is for RAM expansion. A third connector allows the insertion of an optional 300/1200/2400 bps modem card. The fourth connector is the same 96-pin Euro-DIN type connector used in the Macintosh SE but with a different pinout; this connector provides direct access to the signal lines of the Motorola 68HC000 microprocessor. A fifth connector is used with an internal cable to connect to the optional internal SCSI hard disk drive. These connectors are shown in Figure 1-2. See Chapter 5, “Hardware”, for details.

1.4 Peripherals

The Macintosh Portable can accommodate the full range of peripherals available to other members of the Macintosh family (ADB devices should be low-power versions, preferably). In addition, an external video adapter is available for driving larger, CRT displays. This unit is described in Chapter 8; it has three video modes:

- Macintosh II (640 x 400 pixels, with 40 lines blacked at top and bottom of active area)
- NTSC (512 x 400 pixels, with 64 lines blacked at left and right of active area)
- PAL (640 x 400 pixels, with 40 lines blacked at top and bottom of active area)