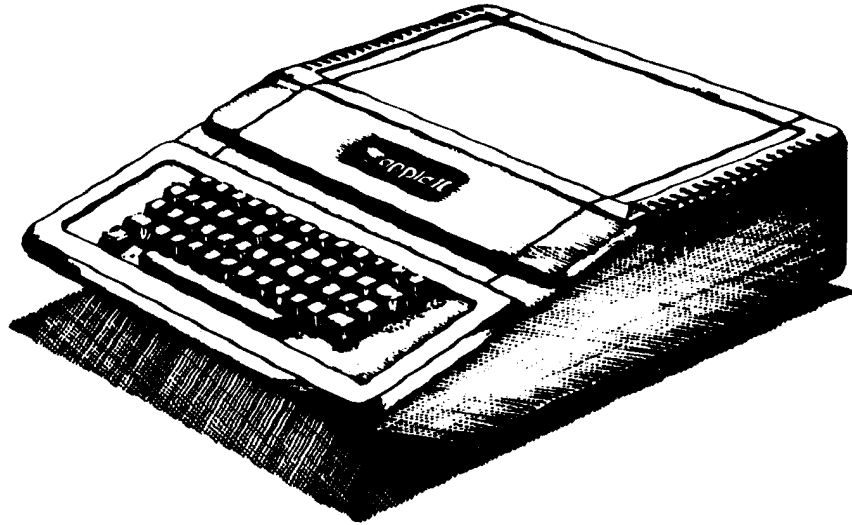


🍏 Apple 2 Computer Technical Information 🍏



# Apple II Computer Family Information

*Data Sheet*

*Apple 2e Computer*

*Sep. 1982*

Document #

*31*

Ex Libris David T. Craig

**Apple IIe**

System Data Sheet



A series of horizontal lines for data entry, with a large grey arrow pointing right on the right side of the page.

# The Apple IIe Personal Computer System

## The Most Versatile Personal Computer in Its Class

The Apple IIe is a personal computer designed to make your learning, working, and playing time more of what you want it to be—rewarding, creative, and exciting. Whether you're a manager, scientist, computer enthusiast, independent business owner, even a first-time computer user, you'll be impressed with the Apple IIe's powerful capabilities and ease of operation. And when you're ready to grow, you'll discover that the Apple IIe provides significant expansion options to suit your needs.



### Discover the World of Apple Personal Computing

More than three-quarter million Apple personal computer systems—the largest installed base of computers in the world—are in use today. You'll find you can select from thousands of programs made by Apple and other companies for a variety of software solutions. You can, for example, . . .

- write, revise, edit, and print reports, letters, memos, term papers, and documents quickly and easily. . .

- calculate, manage, forecast, and explore any aspect of your personal financial position, such as tax planning. . .
- establish, maintain, and update general ledger, accounts receivable and payable, payroll, and inventory control records for your small business or new venture—eliminating hours of paperwork. . .
- teach or learn popular computer languages, including Pascal, BASIC, FORTRAN, and others, while eliminating the problems and inconvenience associated with timesharing systems. . .
- introduce children to the power and excitement of personal computers through computer-aided instruction, interactive educational programs, and computer languages such as Logo and SuperPILOT—better preparing them for the future in this high-technology age. . .
- save hours of work by programming your Apple to perform repetitive measurements, calculations, or procedures. . .
- set up a computer-based instrument system, using the IEEE-488 interface card with any of hundreds of instruments. . .
- collect data from sensors, and use your data to control processes or experiments. . .
- create and update a personal investment portfolio, maintaining transaction records on common stocks, bonds, mutuals, and other financial assets. . .

- share with family and friends the beauty and fun of color graphics while playing high-resolution games. . .
- access the world of electronic data bases and information services, send electronic mail, or stay in touch with the latest financial developments on the Dow Jones™ News/Retrieval Service — any day—using a modem. . .
- develop and write your own programs, for business or pleasure, tailored specifically to your personal needs or your company's needs, even if you have no programming experience! Consult your dealer for the Apple system configuration that meets your needs. You can buy hundreds of programs right off the shelf at your local computer store, or consult a directory of Apple and Apple-compatible software for a list of applications software and vendor sources.

### Apple Makes It Easy

The Apple IIe system includes a comprehensive owner's manual, written to help you learn quickly how to get the most out of your personal computer. From the time you open the system box to your first keystrokes, you're given clear, well-documented, and friendly instructions with photographs and diagrams to make getting started easy. Every Apple IIe manual includes a glossary of terms, an index, and a distinctively clear style of presentation intended to lighten the learning stages and answer your questions.





**Expand Your Apple and Your Horizons**

Buying an Apple personal computer means an opportunity to explore ways to do a variety of projects more quickly and more efficiently. Whether you're a scientist gathering data and controlling instruments, an entrepreneur starting up a new venture, or a manager seeking better presentations, your Apple IIe will allow you to expand powers and capabilities. With options for more functions, operating systems (DOS, CP/M® or Pascal), and mass storage for data, your Apple never stops providing you with solutions. And if you want to explore and master today's newest technology or free your creative spirit, you can write your own computer programs using the Applesoft Floating Point BASIC language built into each Apple IIe Personal Computer System. Documentation and manuals for Applesoft are available separately.

**You're in Control**

The Apple IIe personal computer is a versatile and powerful tool with which to develop and extend your ideas, plans, and opportunities. In addition to offering a wide range of software and easy programmability, the Apple IIe also will . . .

- allow you to expand your system as your needs grow, because of its modular method of adding more peripheral cards and accessories. . .
- prompt you for input and warn you of errors in many cases. . .
- let you explore music and speech applications with its sound capability. . .
- heighten interest and enhance presentations with its color graphics capability. . .
- offer safety and durability, because the unit is UL-approved and housed in a rugged, molded case. . .
- travel with you, because it is lightweight and portable. . .
- assure you of low service costs, because its components are easily accessible and replaceable by the many authorized Apple Service dealers. . .
- offer you exceptional reliability and life, because of its built-in self-testing diagnostics, advanced LSI custom chips, and state-of-the-art electronic design.

**Standard Features**

The Apple IIe Personal Computer System provides these standard features:

- typewriter-style, full ASCII keyboard, 63 keys, all 128 ASCII codes, upper and lower case, and auto-repeat feature
- special-purpose keys: UP-ARROW, DOWN-ARROW, LEFT-ARROW, RIGHT-ARROW, TAB, and DELETE; programmable OPEN-APPLE and SOLID APPLE; plus CONTROL, SHIFT, CAPS LOCK, ESCAPE, and RESET
- 6502A microprocessor (8-bit CPU)
- 64K bytes RAM Memory
- 16K bytes ROM, which includes built-in Applesoft BASIC language
- color graphics and sound capabilities
- multi-purpose video and memory expansion slot
- seven I/O expansion slots
- high-efficiency switching power supply
- cassette interface
- D-9-style input/output connector (used for hand controls)
- back panel designed for quick connect/disconnect, using D-style connectors
- internal power-on indicator light on main logic board for safety
- lockable case lid
- RFI shielded case



**Technical Specifications**

■ **Video Display Specifications:**  
 Through software selection, an Apple IIe displays text, high-resolution graphics, and—when connected to a color monitor (or television using an RF Modulator)—color graphics. Graphics commands allow either of two screen “pages” to be displayed, with or without four lines of text below the display area.

**Display Modes:**  
 —40-column text, 5x7 dot matrix (TV or Monitor)  
 —80-column text with optional card, 5x7 dot matrix (Monitor required)  
 —Low-resolution color graphics (TV or NTSC color monitor)  
 —High-resolution color graphics (TV or NTSC color monitor)

**Text Capacity:**  
 —24 lines by 40 columns  
 —24 lines by 80 columns with optional 80-column-text card

**Character Set:**  
 —96 printable ASCII characters (upper and lower case)

**Display Formats:**  
 —Normal, Inverse, Flashing

**Low-resolution Graphics:**  
 —16 colors, 40hx48v resolution (or 40hx40v with four lines of text)

**High-resolution Graphics:**  
 —6 colors: black, white, violet, green, blue, orange, 280hx192v resolution (or 280hx160v with four lines of text)

■ **Central Processing Unit (CPU) Specifications:**  
 The Apple IIe’s microprocessor is an eight-bit microprocessor with a sixteen-bit address bus.

In the Apple IIe, the 6502A runs at 1MHz and performs up to 500,000 eight-bit operations per second.

**Type:**  
 6502A  
**Registers:**  
 Accumulator (A)  
 Index Registers (X,Y)  
 Stack Pointer (S)  
 Processor Status (P)

**Register Size:**  
 Eight bits  
**Data Bus:**  
 Eight bits  
**Address Bus:**  
 Sixteen bits  
**Address Range:**  
 65,536 (64K)

■ **Memory Specifications:**  
 The Apple IIe comes with 64K bytes of dynamic RAM for user memory. The Apple IIe’s programmable storage (64K RAM), read-only storage (16K ROM), and input and output devices are allocated locations in this 64K address space. All input and output in the Apple IIe is memory mapped.

**User Memory (RAM):**  
 64K dynamic RAM  
**ROM Memory (ROM):**  
 16K ROM (Programs are permanently stored in two 8K by 8-bit read-only memory chips)  
 Programs in ROM:  
 Applesoft interpreter  
 System monitor routine  
 80-column display firmware  
 Self-test routines

■ **System Monitor:**  
 —disassembler  
 —automatic input/output device assignment  
 —keyboard and screen editing features  
 —register examine/modify and cassette read/write routines  
 —hexadecimal add/subtract for relative branch calculations

■ **Inputs And Outputs:**  
 —typewriter-style, full ASCII keyboard  
 —speaker output  
 —cassette input and output  
 —video display output (B/W text & graphics, color graphics)  
 —seven expansion slots (fully buffered, with interrupt and DMA priority structure)  
 —hand control input and output (game I/O) signals:  
 ◦ annunciator outputs (4)  
 ◦ strobe output (1)  
 ◦ switch inputs (3)  
 ◦ analog (hand control) inputs (4)  
 ◦ ground and +5 volts  
 —RF modulator output  
 —numeric keypad input

■ **Electrical Specifications:**  
 The Apple IIe’s power cord should be plugged into a three-wire 110- to 120-volt outlet. The System operates on normal household AC power.

**Line Voltage:**  
 107V to 132V AC  
**Typical Power Consumption:**  
 11 Watts (volt-amperes)  
**Maximum Power Consumption:**  
 60W continuous  
 80W maximum  
**Supply Voltages:**  
 +5V ±3%  
 +11.8V ±6%  
 -5.2V ±10%  
 -12V ±10%  
**Maximum Supply Currents:**  
 +5V: 2.5A  
 +12V: 1.5A continuous  
 2.5A intermittent\*  
 -5V: 250mA  
 -12V: 250mA  
 \*20 minutes on; 10 minutes off.  
**Maximum Temperature on Power Supply Case:**  
 55°C (130°F)

■ **Environmental Specifications:**  
**External Ambient Operating Temperature:**  
 0° to 45°C (32° to 113°F)  
**Relative Humidity:**  
 5% to 85%

■ **Physical Specifications:**  
**Apple IIe:**  
 height 4.5 inches (11.43 cm)  
 width 15.13 inches (38.43 cm)  
 length 18 inches (45.72 cm)  
 weight 12 lbs (5.45 kg)  
**Safety and RFI Qualifications:**  
 The Apple IIe meets the following agency regulations for Safety and EMC:  
 FCC Part 15, Class B Computing Devices  
 CSA 22.2, No. 154-1979  
 UL 126Z—Office Machines

**The Apple IIe Personal Computer System Package**  
 64K System  
 Power Cord  
 Monitor Cable  
 Nut Plate Kit  
 Owner’s Manual  
 Keyboard Tutorial Disk  
 Warranty and Service Information  
 U.S. Order No. A2S2064  
 64K byte Apple IIe

Specifications of products may change without notice.

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