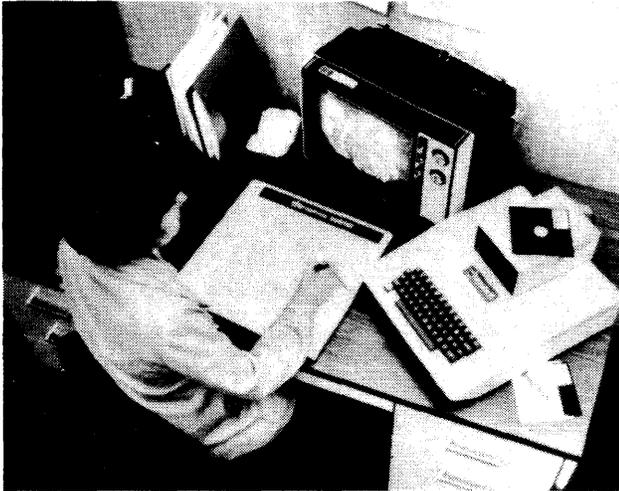


# Apple II and Apple II Plus



*The Apple II, configured for fairly typical home use, includes a single diskette drive and a TV set for color graphics. Not as commonly used is the graphics tablet shown here, capable of producing high-resolution, multi-colored drawings.*

## BACKGROUND INFORMATION

*Apple Computer, Inc., 20525 Mariani Avenue, Cupertino, CA 95014. Telephone (408) 996-1010.*

Apple Computer, Inc. was founded in 1976, the brainchild of two young engineers with big dreams and small resources. Computer hobbyists were the first market of the fledgling company. Most were electronics engineers, targeted because they could easily recognize the high performance and overall quality of the new computer.

In 1977, the company revolutionized the personal computer market with the introduction of the Apple II, the first fully assembled computer of its kind. Unlike the "kits" offered by the competition, its performance did not depend upon the varying talents of its users to solder, wire, assemble components, and "debug" the finished product. Additionally, the Apple II was the first fully programmable computer of its size. Acceptance of the Apple II rapidly spread from hobbyists to business managers and other professionals.

## SYSTEM CHARACTERISTICS

The Apple II and Apple II Plus differ in the built-in Basic language provided (Integer Basic in the Apple II, Applesoft Basic in the Apple II Plus). Both models include as standard features a ROM-based system control program; color graphics and sound capabilities; sockets for up to 48K bytes of RAM (64K bytes with a plug-in Language System); cassette interface; game I/O

**Current models:** Apple II, Apple II Plus.  
**Memory:** 16KB-48KB RAM (64KB with plug-in Language System); 140KB-840KB diskette.

**Workstations:** one local.

**Base list price:** \$1,330-\$1,530 includes keyboard, power supply, ROM resident Integer Basic interpreter, monitor, 16-48KB RAM.

**Typical list prices:** \$2,075 (student)—32KB RAM Apple II Plus and floppy disk with interface; \$6,515 (business)—48KB RAM Apple II Plus with two floppy disk drives, 12" B/W video monitor, Qume Sprint 5/45 printer, high speed serial interface card and The Controller—general business software.

**Primary uses:** professional, small business, education, scientific/industrial, home/hobby.

**Popular options:** from Apple—floppy disk subsystem, graphics tablet; printers, joystick, interface cards, and expansion options.

**Principal programming languages:** Basic, Pascal, Fortran.

**Principal applications software:** The Controller—general business software, Apple Writer—text editing, Apple Plot, Apple Post—mailing list maintenance, Dow Jones Series Portfolio Evaluator, Dow Jones News & Quote Reporter, Business Graphics, Apple Music Theory, and various education and games packages.

**First shipment:** 1977.

**Number installed to date:** over 450,000 (includes Apple III).

**Available through:** over 1100 dealers nationwide.

connector and two hand controls for games; typewriter-style ASCII keyboard; power supply; and eight accessory expansion slots. Additionally, Apple II computers have a single-pass assembler, simulated single-step and trace modes, and breakpoint handling. Apple II Plus computers feature automatic start-up in Basic and optional automatic execution of any disk program on start-up.

The systems do not come with either a display screen or a printer. A variety of printers are available directly from Apple or from independent sources. The user may select an optional Apple monitor or furnish his own display screen, often a color TV, permitting use of Apple's popular color graphics feature.

The Apple will support a maximum of six drives, each with a 140K byte storage capacity. The first drive must be purchased with a controller; each controller will support two drives. A special Disk Operating System (DOS) comes with the disk drive system to keep track of files, save and restore information on a diskette, and perform various other functions.

The unusually rich complement of business software and the variety of high capacity peripherals available for the Apples make these systems ideal candidates for professional or small business offices.

## Apple II and Apple II Plus

### HARDWARE/PACKAGING

#### PROCESSOR/MEMORY

Model: Synertek 6502 microprocessor; 8 bits  
RAM: 16KB to 48KB in 16KB increments (\$120); 64KB with Language System (\$195)  
ROM: 12KB, 10KB available  
System prices: 16KB (\$1,330); 32KB (\$1,430); 48KB (\$1,530)

#### DISPLAY

Type:	Monitor II (B/W)	Monitor III (B/W or green phosphor)
Number:	one local	one local
Screen size:	9-inch	12-inch
Chars./screen:	960 characters; 40 col. x 24 lines	1,920 characters; 80 col. x 24 lines
Char. type:	5 x 7 matrix, upper case;	128 ASCII set, upper/lower case
Features:	normal, inverse, flashing	normal, inverse
Graphics:	(low resolution)— 1,600 pt. array (40 x 40 plus 4 text lines), 1,880 pt. without text; (high resolution)— 44,800 pt. array 280 x 160 plus 4 text lines), 54,000 pt. without text	107,520 pt. array (560 x 192)
Interface:	integral cable plug	integral cable plug
Price:	\$240	\$320

#### KEYBOARD

Type: typewriter style, tactile, moveable  
No. of keys: 52, ASCII character set  
Interface: integral connection

#### DIRECT ACCESS STORAGE

Model: Apple Disk II  
Type: 5¼" diskette  
Capacity/drive: 140KB; 137KB available with Pascal, 124KB available under DOS  
Drives/system: 2 drives/controller, 6 drives max.  
Avg. access time: 600 milliseconds, max.  
Transfer rate: 156KBS  
Interface: 1 slot/controller  
Price: \$645—drive and controller; \$525 drive only

#### PRINTERS

Model: Silentype  
Type: matrix, thermal  
Paper: thermal, roll, 8.5"  
Char. set: 96  
Chars./line: 80  
Speed: 40 cps  
Interface: 1 slot  
Price: \$395  
Centronics 737 (\$1,025) and Qume Sprint 5/45 (\$2,995) also available from Apple.

#### DATA COMMUNICATIONS

Model:	Modem IIB (103A type)	Serial Interface card
Trans. mode:	half/full-duplex	half-duplex
Protocols:	asynch.	synch.
Lines:	1	1
Speed, bps:	110 or 300	75-19.2K
Interface:	1 slot	1 slot
Price:	\$199	\$195

#### OTHER I/O

Magnetic tape: cassette recorder optional, integral connection  
Game controls: 2 hand-held paddles standard, integral connection  
Loudspeaker: built into basic cabinet  
Graphics input tablet: stylus-driven digitizer (\$795), 200 points/inch, 1 slot  
Standard interfaces: Parallel Printer (\$180); RS-232C with Communications Interface Card (\$225); Serial Interface Card (\$195); IEEE Interface Card (\$450)

#### I/O ELECTRONICS

Structure: 8 integral peripheral board connectors, buffered, with Direct Memory Access (DMA)

### SOFTWARE

#### LANGUAGES

Basic: Integer Basic—included with Apple II; Applesoft Basic—included with II Plus  
Pascal: UCSD Version 2.1 (\$495)—includes 16KB language card  
Fortran: ANSI X3.9-1978 standard (\$200)—requires 48KB  
Assembler: 6502 version in ROM

#### OPERATING SYSTEM

Name: DOS 3.3 Disk Operating System—included with Disk II  
System requirements: minimum 32KB RAM; Disk II and controller  
Concurrent tasks: one  
Other functions: permits both sequential and random access; capability to save, load, run, rename, delete and verify files through housekeeping commands; back-up on single drive

#### UTILITIES

Sort: yes  
Text editor: Apple Writer 2.0 (\$150)  
Other: DOS Tool Kit (\$75)

DATABASE MANAGEMENT SYSTEMS: none specified

#### COMMUNICATIONS SUPPORT

Name: Communications Interface Card (\$225)  
Function: allows connection to modems, CRT terminals and other devices employing a bidirectional serial (RS-232) interface

#### APPLICATIONS PROGRAMS

Accounting: The Controller 1.1 (\$625) including general ledger, accounts receivable, accounts payable  
Text Editing: Apple Writer 2.0 (\$150)  
Plotting: Apple Plot (\$70)  
Mailing List: Apple Post (\$50)  
Stock Market: Dow Jones Series Portfolio Evaluator (\$50), News & Quotes Reporter (\$95)  
Numerous educational, entertainment and business application packages available through Apple and independent sources.

### SUPPORT SERVICES

#### DOCUMENTATION

Range: about 25 manuals available (\$2-\$25 each); Apple II/II Plus Reference Manual (\$20), Disk II Floppy Disk Manual (\$2), The DOS Manual (\$10)

#### SUPPORT

Training and education: none from Apple; available at discretion of dealer  
Maintenance: 3 levels of hardware service; about two-thirds of dealers make simple 1-day repairs (Level I); Level II repairs at regional centers; Level III work at factory; all service fee based

#### TERMS AND CONDITIONS

Lease terms: available through some dealers  
Discounts: none officially available at retail level; some dealers and mail order houses will offer up to 15% off list; especially for Apple II's and RAM  
Warranties: 90-days parts and labor; optional 1-year extended warranty (\$225) for entire system  
Software terms: one time charge on software purchases ■