

# 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., 10260 Bandley Drive, 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. They made the prototype Apple computer in a garage, that now proverbial birthplace of many great ideas in California's Silicon Valley. 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. Demand for the unit soared, soon outstripping the production capabilities of the garage. Apple had arrived.

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.

The company's dedication to quality is the basis of its significant market strength and the most effective way it can continue its remarkable growth. Through its advanced research and development activities and commitment to product excellence, Apple is determined to expand its position among the preferred personal computer manufacturers. With over 150,000 machines installed to date, Apple is well on its way.

**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, AC power cord, manuals and 16-48KB RAM.

**Typical list prices:** \$2,075 (student)—32KB RAM Apple II Plus and floppy disk with interface; \$7,060 (business)—48KB RAM Apple II Plus with two floppy disk drives, 12" B/W video monitor, Qume Sprint 5/45 printer and forms tractor, 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, The Apple Cashier—retail management, Apple Writer—text editing, Apple Plot, Apple Post—mailing list maintenance, Dow Jones Series Portfolio Evaluator, Dow Jones News & Quote Reporter, Tax Planner, Apple Music Theory, and various education and games packages.

**First shipment:** 1977.

**Number installed to date:** over 150,000 (includes Apple III).

**Current shipment rate:** information not available.

**Available through:** over 900 dealers nationwide.

## 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; cassette interface; game I/O connector and two hand controls for games; typewriter-style ASCII keyboard; high-efficiency switching 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 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 (\$1,000); 64KB with Language System (\$495)  
ROM: 12KB, 10KB available  
System prices: 16KB (\$1,330); 32KB (\$1,430); 48KB (\$1,530)

#### DISPLAY

Type: color or B/W TV set; or Apple Monitor II (\$240), B/W  
Number: none provided; maximum of one available  
Screen size: from Apple, 9-inch; from other sources, any size  
Chars./screen: 960; 40 chars./line, 24 lines  
Char. type: upper case, 5 x 7 matrix; lower case with available software  
Features: normal, inverse, or flashing characters  
Graphics (low resolution): 15 colors in 1,600-point array (40 x 40 plus 4 text lines); 1,880 points without text  
Graphics (high resolution): 6 colors in 44,800-point array (280 x 160 plus 4 text lines); 54,000 points without text  
Interface: integral cable plug; TV set also requires RF modulator

#### KEYBOARD

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

#### DIRECT ACCESS STORAGE

Model: Apple Disk II  
Type: 5 1/4" 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: \$635  
Centronics 737 (\$1,025) and Qume Sprint 5/45 (\$2,995) also available from Apple.

#### DATA COMMUNICATIONS

Model:	Modem IIB (103A type)	Serial Inter- face 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) and Serial Interface Card (\$195)

#### 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: USCD 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 (\$75)  
Other: DOS Tool Kit (\$75)

#### DATABASE MANAGEMENT SYSTEMS

Name: Apple Post (\$50)  
System requirements: 32KB RAM, two Disk II drives with controller, compatible printer and control card (optional)  
Function: mailing list creation and maintenance

#### 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  
Retail: The Apple Cashier (\$250)  
Text Editing: Apple Writer (\$75)  
Plotting: Apple Plot (\$70)  
General Business: Apple Post (\$50); Tax Planner (\$120)  
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: none  
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 (\$195) for entire system  
Software terms: one time charge on software purchases ■