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apple® computer

Apple means business

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Payroll
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Estimating
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Games
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Chemists
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Bankers
Teachers
Apple —
the best partner you've ever had

Over 100,000 Apple systems are in daily use throughout the world helping someone or some business grow either in knowledge or efficiency. Now it is not if you buy one but when you buy one. Make sure you pick an Apple.

E & OE

Contents

Apple computer systems

Apple computer system

APPLE II will change the way you think about computers. That's because it is specifically designed to handle the day to day activities of education, business, financial planning, scientific calculation, and entertainment. It makes learning to use computers enjoyable and creative, by bringing to the user a new level of simplicity through design sophistication.

Getting started

APPLE II is faster, smaller, and more powerful than its predecessors. And it's more fun to use too, because of built-in features like:

— BASIC — The Language that Makes Programming Easy
— Fifteen-Colour Standard Graphics (in an 1,880-Point Array) for Superb Visual Effects
— High-Resolution Graphics (in a 54,000-Point Array) for Finely-Detailed Displays
— Sound Capability that Brings Programs to Life
— Hand Controls for Games and Other Human-Input Applications
— Internal Memory Capacity of 48K Bytes of RAM, for Big-System Performance in a Small Package
— Eight Accessory Expansion Slots to let the System Grow With Your Needs

You don't need to be an expert to enjoy APPLE II. It is a complete, ready-to-run computer. Just connect it to a video display and start using programs (or writing your own) the first day. You'll find that its tutorial manuals help you make it your own personal problem solver.

New features — Apple II plus

Now APPLE has a new twist — the APPLE II Plus, with our extended APPLESOFT BASIC as the standard language. The APPLE II Plus is designed for the serious user, with 9-digit arithmetic precision and exclusive Auto-Start that can run programs automatically when you turn the computer on. Both APPLE II and APPLE II Plus provide the same exciting colour graphics, sound, hand controls and computational features. And both systems can take advantage of PASCAL, APPLE's superlanguage, with installation of the new Language System (See Expansion Options).

Colour and sound

APPLE's advanced graphics commands make brilliant colour displays something even a beginner can master. Its colour graphics can be used for applications ranging from business charts to architectural design. They make any program more effective.

APPLE's built-in loudspeaker prompts you for inputs, warns you of errors, and lets you explore synthesized music and speech applications.

A learning tool

APPLE will help you to learn what computers are all about. Discover how easy it is to create your own computer programs. Introduce your children to APPLE, and watch them explore and master today's most exciting new technology. Use the Apple Software Bank to start your own library of programs that make learning fun.

Apple grows with you

Your APPLE is ready to grow when you are. Whether you choose APPLE II or II Plus, you can use all of APPLE's broad line of peripherals, accessories, and software. For example, a basic system can easily be expanded for business applications by adding two disk drives, printer, and General Business System software.

Introduce yourself to APPLE — advanced tools that set the standard of excellence in personal computers.

Apple in business

An emerging competitive edge

Being competitive in business means getting important data quickly, when you need it. And this is what the personal computer does best of all.

Take, for example, a travelling insurance salesman who takes his microcomputer in the car with him to keep customer and inventory information at his fingertips.

Or the senior partner in a law firm who calls his microcomputer 'my equalizer.' His three-man operation uses the data and word processing capabilities of the computer to compete successfully in court with firms many times its size.

The chairman of the board of one of the world's major industrial corporations has three microcomputers that help him keep abreast of his company's diverse operations, while a financial analyst for a leading investment firm uses his microcomputer to keep his clients' portfolios.

These businessmen are the vanguard of a growing revolution being created by microcomputers, which are bringing the power and efficiency of rapid data processing to small businesses and giving managers of larger firms 'hands-on' access to business data when they need it.

And so these business people advantage over their competitors who still spend many man-hours on bookkeeping, record-keeping and report-making functions for which computers are so ideally suited.

Sharpening The Edge

Microcomputers are making new contributions to competitiveness by both increasing internal efficiency and improving customer service. One industrial equipment distributor discovered both benefits after installing his computer.

'For the first time in three or four years we were able to get each day's work done within a normal working day,' he said. 'Our computer has turned out to be an important sales tool as well. We can use the computer-generated product sales analysis reports to give our customers a comprehensive report on all the products they have purchased from us, which shows them we pay close attention to their requirements.

'The system also helps in our dealings with suppliers. It gives us a good image, and they respect our operation. In fact, two of our leading suppliers have told us we are their most highly automated distributor.'

Immediately results can often be seen from the use of a computer. An automotive parts warehouse installed a business system to handle inventory. In six months the inventory was reduced by £15,000 with no loss in effectiveness. Says the owner: 'The computer more than paid for itself.'

Another businessman, a manufacturer's representative, found that his microcomputer gave him more control of his managerial responsibilities, both financial and personnel.

'I feel that I know much more about the week-to-week progress of my business,' he says. He also writes his own software programs—common among microcomputer users—to produce semi-monthly sales summaries for his salesmen. 'Now they know exactly what their customers are ordering ... and so do I.'

Microcomputer Characteristics

Business people have really just begun to discover the wide variety of uses for microcomputers. And that is what makes these small computers so unique, especially in contrast with their larger cousins, the mainframes and minicomputers.

Unlike the larger business computers, which require a specially designed room environment and a data processing staff, a microcomputer is designed to be used at an individual level. It is relatively inexpensive, can be as portable as a typewriter, fits on a desk or table with no special electrical or environmental control requirements, and doesn't need a data processing professional to operate it.

But, most important, a microcomputer is easy to use. Nearly any person can purchase, install and operate his own. The only demand a small computer places on its owner is that he become involved, which isn't a problem judging from the thousands of business users.

The owner of a marine construction company had no computer or programming background when he bought a microcomputer. His first program handles cash disbursements, doing a week of clerical work in a day. His next program will standardize the bidding procedure to take out the guesswork.

An editor and freelance writer who exchanged his typewriter for a personal computer says: 'At the risk of sounding overly enthusiastic, I honestly feel the use of a good word processing computer system will open up a whole new dimension for any writer.'

A psychologist, using his computer to administer and score personality tests, says: 'No other group has as great a potential for microcomputer application as the private practitioners.'

Retailers are highly recommending microcomputers too. One typical hi-fi store has tightened up its operation with programs for payroll, general ledger, sales entry and inventory. To boost sales, it uses the word processing and mailing list capabilities for producing direct mail advertising. 'At the price these things sell for,' the owner says, 'any retail store with more than three or four employees could use a computer. Maybe 40 percent of them could really profit from one.'

Small Computers in Big Business

For the small businessman, microcomputers mean that he can economically have access to the same kind of operating and accounting information previously available only to his larger

competitors. Within large companies the small computer has opened up new capabilities for department heads and for managers at their individual locations.

It is within big business that computers are truly earning their 'personal' distinction. There are no programmers and no operators to go through to obtain computer-stored information. Managers themselves can get the information they need when they need it.

Value for Money

Obviously it doesn't take an accountant to figure out the benefits of a small computer in terms of dollars, but accountants have been some of the first effective users to enjoy the benefits.

A recent analysis of the economics of small business computer implementation projected that an investment in a microcomputer could, in some cases, cut manpower requirements in half and increase gross profits from 2 to 10 percent. Another way of looking at return-on-investment is to say that a microcomputer would pay for itself if all it did was save 20 percent of the time of one employee for a year, which is a modest expectation indeed.

Before you go running, cheque book in hand, to your nearest computer dealer, make sure you realize that no £100 computer is going to do all these things for you. In fact, some £5,000 systems might not do all of them efficiently. You should become a knowledgeable buyer and make certain you understand the system you look at. Its computing power shouldn't be too limited for your needs, and either software should exist for your purposes or you should find out how to get the assistance you need in programming the system to suit you.

The Business User's Needs

What are the special needs of the business user?

Software is certainly at the top of the list, and both manufacturers and independent software houses have reacted quickly with many new 'canned' application packages.

Hardware expandability is a must. The business system should accept peripheral equipment, such as printers and disks, which are essential. The same system in other applications may require speech recognition capabilities, greater memory capacity, interfacing with a computer network, and so on.

When choosing your business system, you should also carefully check out the computer retailer to be certain the dealer can provide the training and after-sales service that are necessary for full utilization of the system.

Can you benefit from the use of a microcomputer system? Only you can determine that for sure. Certainly current users provide a broad sample. The availability of low-cost computer power has led International Data Corporation, a leading computer industry market research firm, to predict that virtually any organisation having £250,000 in annual sales will require a computer or computer services during the next few years if it is to improve its efficiency and remain competitive in the marketplace. That's why the microcomputer can truly be called 'An emerging competitive edge.'

Apple in education & learning

Towards computer literacy

A hundred years ago, many people were ill-prepared for the coming 20th Century because they could neither read nor write. Literacy for the masses was therefore an inescapable goal for the nation's emerging educational system. Now comes the prospect of a vastly different society in the 21st Century—one in which computer data bases will replace the written word as the storage media for man's accumulated knowledge. Once again the nation is looking to its educators to provide the masses with skills required to 'read and write' in this new environment.

At this point, many of the educators themselves are still not prepared to utilize the technology and the computer-oriented language of the century ahead. Even when the interest has been there, restrictive budgets and the complexities of large computers have often become roadblocks. Both the interest and the availability are now on the increase, however, thanks in part to the pioneering efforts of some educators who have paved the way.

No other application of the microcomputer has such importance and immediacy, since only *knowledge* of computing can make it possible for all of society to fully utilize the *power* of computing. The educational challenge extends far beyond the classroom, and, in fact, most educators feel it is the computer in the home which will truly revolutionize the learning process for students, for the handicapped, and for those adults whose profession requires continuing education programs, such as doctors, lawyers and teachers themselves.

The simple fact is that the microcomputer promises to turn the learning process into a lifetime adventure for 'students' of all ages. Any development which can accomplish that is worthy of attention.

Low Cost

The microcomputer offers educators, for the first time, the opportunity to realize the promise which has been demonstrated over and over during the last two decades of effort. Its purchase cost is low, thus its per-student-hour cost is soon amortized; its reliability is dramatically better than that of previous computers because it uses large-scale integrated circuits which require few external connections; and it is so flexible in use because of its small size and weight and because it is a complete self-contained computer, that we can use it in any classroom, office, or home without special planning. It even is conceivable that school systems and local libraries will make arrangements to lend microcomputers to students or to local residents as they now do with books, paintings, records, and video equipment.

Discovery Learning

In many situations, students learn most effectively when they have direct experience with the phenomenon under study. This is the major justification for the expenditures of millions of pounds annually to equip, stock, and staff biology, chemistry, and physics laboratories in schools and in colleges in the UK. Most of the students in these laboratories will not become experimentalists nor even scientists. Rarely, if ever, is a new discovery made in such laboratories. Yet, students seem to understand concepts better when they experience them directly.

Students of mathematics and of the social sciences have not had such experimental learning opportunities available to them until now; but, with the easy availability of microcomputers, it should be possible to provide them. We foresee computer-based 'laboratories' becoming available to educators to provide discovery learning in biology, chemistry, physics, mathematics and the geographical, geological and social sciences.

Computer Awareness

Our society already is so dependent upon computers that our citizens must become aware at least at some minimal level of how computers work, how they are used in our society, and what effects these uses will have on our society. The microcomputer is an ideal vehicle for such learning experiences.

Problem Solving

In many disciplines, students are capable conceptually of understanding how to solve problems in that discipline but are not prepared mathematically to execute the solution; hence, they are not presented with the problems and do not develop problem solving skills—skills vital to people in all walks of life. With the computer, students can learn to conceptualize the solution and let the computer execute it.

Graphic and Musical Experience

Many people have the intellectual capability to be creative graphically or musically but do not have the manual dexterity to properly operate a paint brush or to strike the keys on a piano. With the new capabilities of the microcomputer, this creativity may be expressed by young children before they develop this dexterity and by older people who never develop it.

Apple II and Apple II plus

Technical overview

Two types of computers are presently available from Apple Computer Inc. They differ only in the language firmware, demo programs, and documentation supplied.

APPLE II — This computer system is supplied with Integer BASIC, hi-res. graphics routines, mini-assembler, disassembler, and system control firmware in ROM. Demo programs and manuals are oriented around Integer BASIC.

APPLE II PLUS — This sytem is supplied with Applesoft extended BASIC (including hi-res. graphics routines), disassembler, and new Auto-Start system control firmware in ROM. Demo programs and manuals are oriented around Applesoft extended BASIC.

Both APPLEs are self-contained computers based on the 6502 microprocessor. Standard features include: colour graphics hardware, sockets for up to 48K bytes RAM, cassette interface, I/O connectors, typewriter-style ASCII keyboard, high-efficiency switching power supply, and rugged structural foam case.

BASIC language

Both BASICs are available on either APPLE. Integer BASIC is included in the APPLE II, and Applesoft BASIC in the APPLE II Plus. Both BASICs are also available as plug-in card options. In addition, PASCAL and both BASIC languages are provided for use with the APPLE Language System (see Expansion Options, page C-9).

Integer BASIC is a fast language that is ideal for games and high-speed graphics. Applesoft BASIC is an expansion of Microsoft's popular floating-point BASIC that includes 9-digit arithmetic for business and scientific applications plus easy-to-use, high-resolution graphics commands. (See Apple Software Bank for more information.)

Video display

The APPLE displays text, colour graphics, or high-resolution graphics — software selectable. Its graphics commands allow either of two screen "pages" to be displayed, with 4 lines of text below the display area.

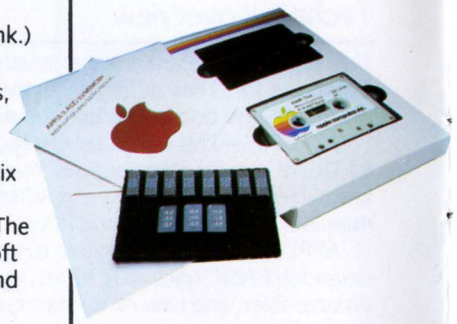
TEXT MODE
— 40 characters/line, 24 lines
— 5 × 7, upper-case characters
— Normal, inverse or flashing characters
— Extensive display control software in ROM
— Full cursor control — protected screen feature
— Fast display — 1000 cps

COLOUR GRAPHICS MODE
— 40h × 48v resolution (40h × 40v with 4 lines text)
— 15 colours
HIGH RESOLUTION GRAPHICS MODE
— 280 × 192 resolution (or 280h × 160 with 4 lines text). Six colours: black, white, violet, green, blue, orange
— Software character generator available for lower case characters and labelled displays. (See Apple Software Bank.)

Memory

User memory (RAM) is organized in 16K byte increments, and may be easily expanded to 48K bytes of total RAM by inserting the memory elements into plug-in sockets on the motherboard. Language (ROM) memory is organized into six blocks of 2K bytes each.

System Control is a standard feature and uses 2K bytes. The APPLE II Plus uses the remaining 10K bytes to store Applesoft BASIC. The APPLE II uses 8K bytes to store Integer BASIC and utility routines (described under Programmer's Aid No. 1).

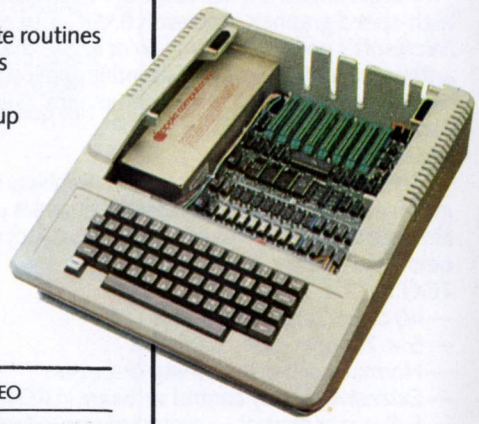


Inputs and outputs

All APPLEs include as standard an ASCII keyboard, audio cassette interface, 8 peripheral board connectors, speaker, I/O connector and two hand controllers.
— Reliable, typewriter-style keyboard
— Fast cassette interface — 1500 bps
— Peripheral board connectors
Fully buffered, with interrupt and DMA priority structure
— 4 analog (0-150K ohn resistive) control inputs
— 3 TTL inputs and 4 TTL outputs

Built-in system control

The APPLE system control ROM brings your computer to life quickly and easily upon power-up. If offers these additional features:
— Automatic Input/Output device assignment
— Keyboard and screen editing features
— Register examine/modify and read/write cassette routines
— Hex add/subtract for relative branch calculations
— Automatic start-up in BASIC
— Automatic execution of disk programs on start-up



MODEL	BASIC LANGUAGE	POWER SUPPLY	VIDEO
APPLE II plus	APPLESOFT BASIC	220/240V, 50/60Hz	CCIR EUROMODE
Memory (RAM)	APPLE II Plus	A2S1016P	

Apple intelligent subsystems

Disk II floppy disk subsystem

General description

Disk II expands your computer horizons with fast, low-cost retrieval of programs and information. It makes inventory, address file, and recipe programs suddenly feasible. It means you can store a year's worth of financial records in one place, and sort through them quickly. And it allows you to handle many other applications that just were not practical before.

Features

— Powerful Disk Operating Software Supports up to 6 drives
— Name Access to Files for Ease of Use
— BASIC Program Chaining to Link Software Together
— Random or Sequential File Access to Simplify Programming
— Dynamic Disk Space Allocation for Efficient Storage
— Individual File Write-Protection Eliminates Accidental File Alterations
— Loads an 8K Byte Binary Image in 6.5 sec. (1.2 sec. in Pascal)
— Storage Capacity of 116 Kilobytes (143K Bytes with Pascal) on Standard 5¼" Diskettes
— Powered Directly From the APPLE (Up to 6 Drives) for Convenience and High Reliability
— Packaged in Heavy-Duty, Colour-Coordinated Steel Cabinet

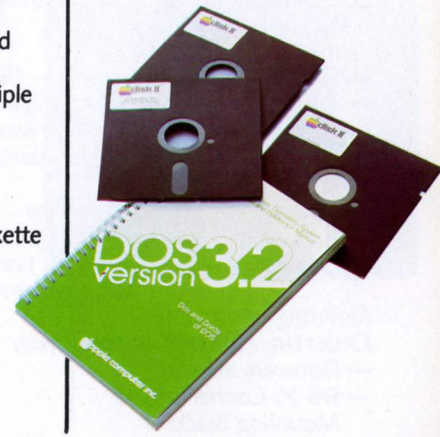
Specifications

PARAMETER	DESCRIPTION
Access Method:	Random or Sequential — arbitrary record length
Track Access Time:	Varies with number of tracks crossed. 200msec (avg.), 600msec (max. across 35 tracks)
Disk Capacity:	116K bytes (formatted), soft-sectored (143K Bytes with Pascal)
Controller:	Up to two drives per controller. Multiple controllers can be used
Min. System Config.:	32K RAM Apple II or II Plus

Ordering information

Order Number: A2M0004. Supplied with:
— Floppy Disk Interface Card
— Bootstrap in ROM
— Disk Drive and Connecting Cable
— System Software on Diskette
— Manual
— Blank Diskette

Order Number: A2M0003. Supplied with:
— Second Disk Drive and Connecting Cable



Telecommunications

Modems and Prestel

Apple II is the first popular microcomputer to be approved by the Post Office in this way and will open up exciting new applications in the field of distributed processing.

This means that the Apple Computer can communicate with Remote Terminals and other computers throughout the UK and internationally. It can be used with the Datel 200 service using the standard Apple Communications Interface Card and with the Datel 600 service.

This is a giant step forward for Appletel, the Apple Prestel Terminal Package, as it is well on the way to becoming totally acceptable by the Post Office in terms of safety and technological reliability.

The Appletel Package allows the Apple user to access the Post Office Prestel Information Service and consists — Communications Card which has been modified to prestel standards, a Master Disc holding the program and Prestel user information, a protective lead to link the Apple to the Post Office Modem and, of course, the Manual which in addition to providing information on operating the Package, tells you how to produce your own applications based on Prestel. As Prestel is constantly being developed you may be assured that software updates will be produced as required.

In addition to the Package, the Apple user will need to rent a modem from the Post Office as part of the Prestel Service. This service is already operating in the London (and Suburbs), Nottingham and Birmingham, with plans to include, during 1980, most major centres throughout the UK — details to be sent later.

Quite simply, an Apple Computer linked to a rented Modem from the Post Office can gain immediate access to a central computer and so to a nationwide network of communication.

Communications interface card

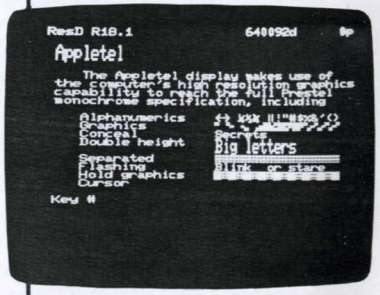
The Communications Interface Card is available separately to allow you to connect your APPLE to modems, CRT terminals, and other devices employing a serial RS-232C interface. The card's built-in intelligence lets you control these devices easily, in BASIC.

Features

— Firmware Control Programs — No Software to Write
— Easily Controlled from BASIC using Simple Commands
— Communicates at 110 or 300 Baud, Half- or Full-Duplex
— RS-232C-compatible Serial Interface

Specifications

PARAMETER	DESCRIPTION
Signal Level:	EIA RS-232C
Data Word Format:	1 start bit, 1 or 2 stop bits, 7 or 8 data bits; odd, even or no parity



Ordering information

Order No. A2B0003. Supplied with:

— Firmware in ROM
— DB-25 Connector and Mounting Bracket
— Demonstration Tape
— Operating Manual

Graphics tablet

General description

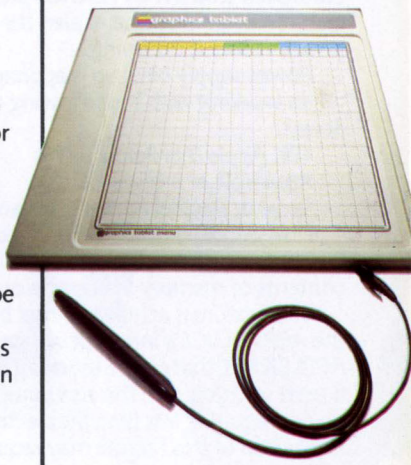
The Graphics Tablet is an image input device that allows the user to enter pictorial information directly (by sketching or tracing) from:

— maps and photographs
— histograms
— architectural drawings
— fine art

Tracing a shape on the tablet surface converts the image to digital values. This information is displayed on the video monitor and may be stored on disk for later processing by the Apple.

The 11" × 11" tablet surface area facilitates entry of large and complex figures. Line segments may be specified by their endpoints, allowing lines to be accurately drawn by hand. A reducer function assists the user in doing detailed work. Area and distance calculations (in user-specified coordinates) may be performed on the resulting figures.

Powerful software provides a comprehensive set of functions selected with the stylus from a menu. This software is written in Applesoft BASIC so the user may easily change or add menu functions to suit a particular application.

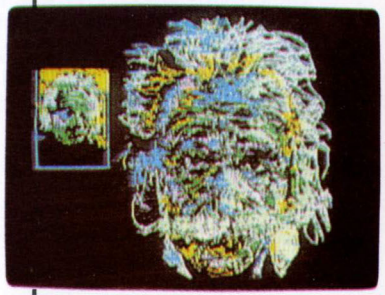


Features

— Direct Input Simplifies Production of Complex Images
— Hand Calculations of Graph Coordinates And Figure Dimensions are Eliminated
— Coordinated Cursor Allows Function Selection From Common Tables on Tablet
— Control Program in Applesoft BASIC makes for Easy User Modification
— Tablet provides 167 points/inch Resolution For Detailed Figures
— Allows User Specified Functions

Specifications

Unit consists of stylus, external digitizing tablet, and plug-in interface card.
Tablet Size: 15" square (11" square active area), 1" high
Resolution: 167 points per inch
Input Modes: Continuous or upon command
Data Rate: Up to 100 coordinate pairs per second
Scaling: User selectable
Minimum System Requirements: 48K RAM, Applesoft BASIC, Disk II



Ordering information

Order number: A2M0029. Supplied with:

— Tablet, Interface Card, Connecting Cable and Stylus
— Manual and Transparent Mylar Overlay
— Control Firmware in ROM
— Software Programs on Diskette

Apple juice

Applejuice reserve power supply

Protect your program against interruption and data loss caused by power 'fluctation' or shortages with the 'APPLEJUICE' reserve power supply. The Apple II may be brought to a controlled stop as APPLEJUICE provides a visual, audible and electronic signal output to alert the user or the computer when a power failure is occurring.

Power supply back up is approximately fifteen (15) minutes when working with the following configuration and single disk access:

48K Apple II or Apple II Plus
Applesoft or Integer Card
Serial or Parallel Printer Interface
Disk Controller Card with two drives

This extra time allowance enables the user to transfer the contents of memory to cassette or disk. (Order No. E2B013)

This feature is achieved either by the operator or by utilizing the APPLEJUICE's interrupt option. This is a signal from the APPLEJUICE that can be used to generate an interrupt, a halt, or a reset instruction in the computer, or to operate any external device requiring less than the electrical output of 60 milliampere. Utilization of this feature may require generation of necessary software by the user.

Back-up time is increased or decreased depending upon peripheral current requirements, disk accesses, and state of charge.

OUTPUTS AT FULL CHARGE	ABSOLUTE MAXIMUM CURRENT OUTPUT
+11.5v±0.25v at 400mA	+11.5v ——— 3A
+ 5v±0.15v at 2000mA	+ 5v ——— 5A
− 5v±0.2 v at 24mA	− 5v ——— 30mA
−11.7v±0.2 v at 25mA	−11.7v ——— 40mA

Charging characteristics (discharged state): ON/STANDBY MODE — 30-36 hours: CHARGE ONLY — 10-11 hours.

Dimensions (overall): 17.8 × 10.2 × 8 cm Weight: 1.22 kg

Refer to pp. 127-130 of your *APPLE II Reference Manual* for an explanation of these features and the necessary pin-out for hard-wire connection of the APPLEJUICE to the Apple in order to utilize the interrupt feature of the APPLEJUICE.

Printers and interface cards

Printers

Three printers are available to meet your needs for reports, listings, and label generation.

Silentype
(complete with Apple Interface)

New from Apple, the Silentype allows printing of high resolution graphics at 60 dots per inch, upper and lower case at 40 characters per second and 80 characters per line. The Silentype eliminates the loading or writing of a programme to print a screen configuration, because you can dump any high-resolution screen directly to the printer.

Paper tiger
(complete with Graphics Option)

This popular printer sets new high standards in low cost impact printers and is ideal for the Apple Computer. Its feature include full 96-character upper and lower case set, eight software-selectable character sizes, parallel and serial interfaces, multiple copy capability, forms length control, stepper-motor-driven tractor feed, adjustable from 1.75 to 9.5 inches and automatic ribbon re-inking. The Paper Tiger can print at up to 95 characters per second at either 6 or 8 lines per inch and both 80 and 132 columns width. An added feaure is the graphics option.

This printer will require a connector cable, software on floppy disc for graphic screen dumps, and we recommend a Parallel Interface.

Texas instruments 810

Excellent high speed printing together with microprocessor reliability. The 810 produces high-quality multi-copies and prints at 150 characters per second. It is fitted with a standard RS232 interface and plastic noise baffle. We recommend a Serial Interface Card for this printer.

Parallel interface card

Parallel Printer Interface Cards are also available separately to allow the use of other parallel printers with your APPLE computer.

Features

— Built-in Firmware Allows Printing With Simple BASIC Commands
— Prints up to 255 Char/Line for format flexibility
— High Speed — up to 5000 Char/Sec (3700 LPM at 80 Char/Line
— Easy to Use with Most Popular Printers (Axiom, Centronics, SWTP, Selectric conversions)

Specifications

PARAMETER	DESCRIPTION
Data and Control Signals:	7-8 Parallel Data Bits, STROBE and ACKNOWLEDGE
Print Line Width:	40-255 Char/Line. Automatic formatting of BASIC listings.

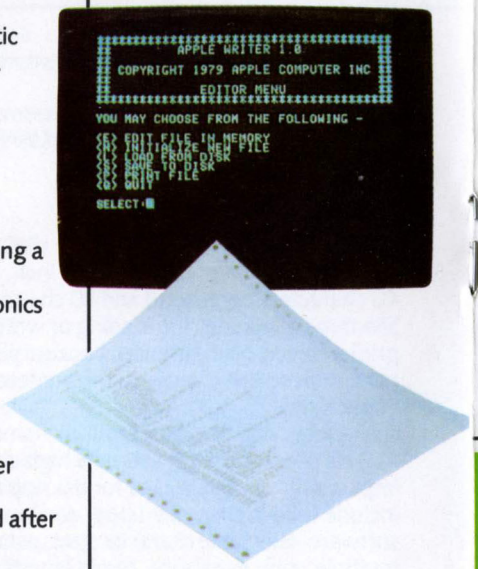
Ordering information

Standard Card (A2B0002), for general purpose use.
Supplied with:
— Configuration Jumper Block
— Ribbon Cable (User supplies connector)
— Manual

This version of the card issues a Line Feed after receiving a Carriage Return character.

Centronics Card (A2B0007), for use with most Centronics and compatible Printers.
Supplied with:
— Pre-wired Configuration Jumper Block
— Ribbon Cable w. Centronics Connector
— Manual

This version of the card does not issue a Line Feed after receiving a Carriage Return character. It is for use with Centronics (or other) printers that automatically line feed after they receive a Carriage Return character.



Serial interface card

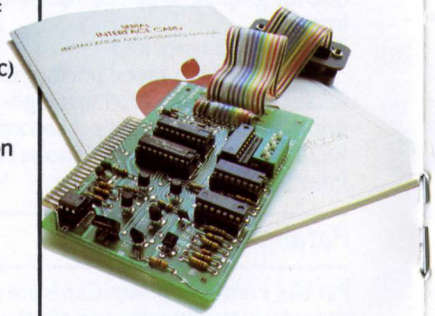
General description

The Serial Interface Card allows an APPLE computer to exchange data with computers, printers, and other devices in serial format (one bit at a time). It is intended for use (in place of the Communications Interface Card) in applications that:
— Use data rates other than 110 or 300 baud (10 or 30 char/sec)
— Involve serial printers that don't require 'handshake'

The Serial Card features on-board firmware that provides BASIC control in both block-data-transfer and printer-operation modes. A number of hardware and software switches on the card serve to adapt it to a wide variety of applications, yet it remains simple to use because of its built-in intelligence.

Features

— Permits BASIC Control of High-Speed Printers and Plotters
— Quickly Transfers Large Blocks of Data by Telephone (through a modem), or Directly to Local Equipment
— Handles Half-Duplex Communication from 75-19.2K Baud
— Programs Easily with Switch-Selectable Preset Conditions for Speed, Line Length, Auto Line Feed and Carriage Return Delay



Specifications

PARAMETER	DESCRIPTION
Signal Level:	EIA RS-232C or 20mA current loop.
Data Word Format:	1 start bit, 1 or 2 stop bits, 5-8 data bits; odd, even, or no parity Checksum is optional.
Character Handling Options:	Lower-case characters optionally converted to upper-case or passed through unmodified and displayed in inverse video.

IEEE interface

This card allows even more accessories such as X, Y Plotters to be interfaced with the Apple.

Ordering information

Order Number: A2B0005. Supplied with:
— Interface Card
— DB-25 Connector and Mounting Bracket
— Manual

Apple expansion options

Expansion options

A wide range of products are available to expand the capabilities of APPLE computers.

Language system

This package includes the Language Card, which allows APPLE users to take immediate advantage of the powerful PASCAL language as well as the Integer and Applesoft BASIC interpreters. The Language Card's 16K bytes of RAM memory electrically replace the ROM firmware built into each APPLE. Upon start-up, this RAM memory is automatically loaded from disk with the user's choice of languages, then electrically protected from change. The loading is controlled by the AUTO-START ROM, also contained on the card. The complete system also includes diskettes containing a language selection "Hello" program, PASCAL, Applesoft BASIC, and Integer BASIC. The reference manuals for all the above language are also included. (Order No. A2B0006)

Applesoft firmware card

The Applesoft Firmware Card provides access to the library of programs written in this extended BASIC language. It contains hardware and software controls that allow it to electrically replace the existing Integer BASIC firmware in APPLE II computers. (Order No. A2B0010). This includes the Programmers Aid (A2M0019)

Auto-start ROM

The Auto-Start ROM makes any APPLE II friendlier and easier to use by adding such features as:

— Automatic Start-Up in BASIC For Systems Without Disks
— Automatic Disk Program Loading When System Turns On
— RESET Protection — RESET Key Halts Program, Returns BASIC
— Easy Screen Editing, With up to 90% Fewer Keystrokes

The device is a plug-in replacement for the existing monitor ROM. It is included in APPLE II Plus Systems, Apple soft ROM Cards, and the Language System. (Order No. A2M0027)

16K byte expansion memory module (RAM)

This module allows user memory expansion in 16K byte increments for any 16K or 32K APPLE computer. The module contains 8 RAM devices, installation instructions, and a test program to insure that installation was done properly. (Order No. A2M0016)

Mountain hardware Clock/Calendar card

This plug-in card provides a 388-day calendar and clock with resolution to 1/1000 second. The clock is crystal controlled to yield .001% accuracy. A built-in rechargeable battery keeps the clock on time up to four days without system power, and external batteries may be used for longer periods. Optional interrupt capability simplifies control applications. Supplied with complete operating instructions and rechargeable battery. (Order No. MHP-X003)

Mountain hardware SuperTalker

SuperTalker allows you to add the dimension of human speech output in your computer programs. Program verbal prompting for the operator of your business system. Use verbal warnings under program control as an enunciator in commercial security or control rooms. Create educational programs that verbally coach the student.

SuperTalker allows the Apple II computer to output exceptionally high quality human speech through a loudspeaker under program control. Output may also be directed through any P.A. or stereo system. Initially, spoken words are digitized into RAM memory through the system microphone. Speech data in RAM may then be manipulated like any other stored data.

The SuperTalker package consists of a peripheral card which plugs into a peripheral slot on the Apple II; a microphone; a loudspeaker; easy-to-use operating software and documentation; plus, two ready-to-run SuperTalker programs.

In order to achieve maximum utility using SuperTalker, the SuperTalker Disc Operating System permits output of human speech under program control with direct I/O routines. It also provides a preparation program which permits the creation of voice files on diskette. BASIC program routines are provided which require only one-line statements to output a word or phrase. (Order No. MHP-X006)

Mountain hardware Romwriter

Firmware in ROM is as fast as your software in RAM, but in ROM it frees up RAM memory space for companion programs. And, there never needs to be a LOAD from disk! Create firmware for your Apple* by programming EPROMs with RomWriter.

Many frequently used assembler programs really ought to be installed as firmware. ROM-based firmware permits a 'power up and go' configuration. Use RomWriter to create firmware for peripherals such as printers or create program cards. By installing EPROMs programmed with RomWriter on Mountain Hardware's ROMPLUS+TM board, program cards of up to 12K in length may be created. (Order No. MHP-X015)

Mountain hardware ROMPLUS+

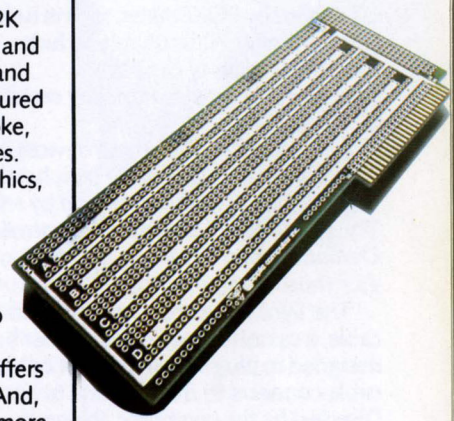
Is a peripheral board whose added features can turn the Apple computer into the most powerful personal computer available today.

ROMPLUS+ provides six sockets to accept individually addressable 2K ROM's or EPROM's. Keyboard Filter™, a 2K ROM program, comes installed on the ROMPLUS+ board and adds many useful features to your Apple, including upper and lower case letters, multiple user-defined character sets, coloured or inverse-coloured letters, keyboard macros (two key-stroke, automatic typing of multiple, user-defined words or phrases. Including BASIC and DOS commands), mixed text and graphics, improved cursor control and STOP LIST and END LIST.

ROMPLUS+ works with Integer BASIC, RAM or ROM Applesoft, and DOS.

Software support is provided on disk and includes demonstration programs and two Editors that allow you to define your own characters or keyboard macros.

In addition to the Keyboard Filter ROM, ROMPLUS+ offers five sockets for ROM or EPROM, plus 'scratchpad' RAM. And, sophisticated firmware on ROMPLUS+ allows one, two or more of its chips to be used simultaneously for programs longer than 2K. (Order No. MHP-X007)



Hobby/Prototyping card

Create your own APPLE interface boards with this wire-wrap card. The 2-3/4" × 7", double sided circuit board includes a hole pattern (on 100-mil centers) that accepts all conventional IC's and passive components. It plugs directly into any APPLE expansion connector, and fits entirely within the computer case. Supplied with complete bus documentation to aid the interface designer. (Order No. A2B0001)

Speech lab

A voice input device consisting of microphone and interface card. The Apple may be trained to recognise a vocabulary of up to 32 words. (Order No. A2M005)

SpeechLink H-2000

Is an inexpensive, easy-to-use voice data input device for the Apple computer. With SpeechLink you can enter data with your Apple and control your Apple or equipment (peripherals) attached to it using your voice.

The SpeechLink will recognize a vocabulary of 64 words at one instant with an accuracy of from 85% to 100% depending on the words chosen, the user, the background noise, and the care with which the system is used. You choose which words you want recognized and program the unit — by speaking into it — to recognize these words for your voice. The words may be words or phrases up to 1.50 seconds long, a period of silence longer than 0.1 second indicates the end of the word.

Once SpeechLink is programmed, the words and their speech programming may be saved on disk and recalled later.

You can use SpeechLink without programming it each time by calling up the programming and vocabulary from disk. More than one vocabulary set may be used in a given program simply by calling up a different set from disk, or switching to a different set stored in RAM. (Order No. E2B105)

Controller 70

Provides four relay contact-closure outputs on a card which plugs into an Apple II peripheral slot and which is completely controlled by POKE statements in BASIC. Applications for which the Controller 70 is suitable include:

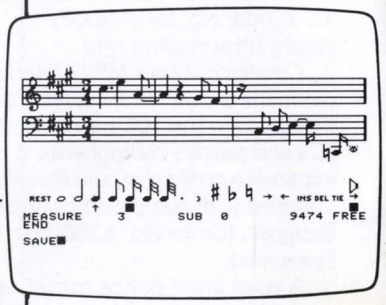
Control of security circuits
Low speed computer signaling on telephone
0-75 baud.
Control of battery operated devices
Additional control of other peripherals attached to the Apple where circuit isolation provided by relays is important.

The Heuristics 70 consists of a controller card, a user Manual and Demonstration Programs. (Order No. E2B104)

ALF music synthesizer card

The Synthesizer consists of a circuit card, an audio output cable, a cassette tape, and an owner's manual. The circuit card is designed to plug into an Apple II computer and the audio output cable connects to this card and to a home stereo system. Directed by the computer, the synthesizer creates electronic signals which are turned into sounds by the stereo system. A variety of different sound qualities can be produced. The circuitry of the Synthesizer card consists of three nearly identical 'channels'. Each channel can produce thousands of different pitches, ranging from about 27.5 Hz to beyond human hearing. The full standard piano range can be produced.

The programs provided allow for the convenient entry of songs from standard sheet music. Three independant pitches can be played at once, or six or nine can be played using two or three synthesizers. (Stereo outputs are available when using more than one unit.) Standard attack-decay-sustain-release envelopes are easily created. Notes can be produced over an eight octave range with 12 or 24 notes per octave. Entered notes are shown on a video display in standard musical form. Typing is minimized by an interactive graphics system which uses the two rotary knobs of the Apple computer to select note types and



positions on a treble and bass staff. Errors made during entry are easily detected since each pitch is played by the synthesizer as it is entered, and measure bars are automatically drawn at the correct places.

Once entered, songs can be saved on disk. Corrections and additions can be made at any time (Order No. 10-5-16)

Songs entered by ALF and by other ALF synthesizer owners are available as ALF ALBUMS — two offer a selection of popular and classical music (Order No. 13-3-2 and 13-3-4) and a third has a beautiful selection of Xmas carols and songs (Order No. 13-3-5).

Note: Most selections require two or more Cards.

Video monitors

The black and white video monitor is the ideal display for the APPLE when colour output is not required. It sits neatly on top of the computer (or disc drives) and provides a very clear and sharp picture. It accepts direct video input from the computer (without the need for a modulator) and each model comes complete with a connector cable and documentation. Each monitor gives excellent deflection linearity and superb high-resolution reproduction.

We offer a choice of three monitors, two 9" models and one 12" model. All utilize an IC and silicon transistors to assure outstanding performance and high reliability. The VM-906 9" model has even high stabilization of definition. (Order No. VM-910 (9"), VM-906 (9") and VM-129 (12")

System furniture

The correct support and presentation of any computer system is helpful to its proper and efficient operation. Although the APPLE can be positioned 'almost anywhere' a custom-designed desk is offered which has two-tier work surface, the upper one for the video monitor and/or smaller printer and the lower for the APPLE itself and up to four disc drives. (Order No. APP1)

Apple software bank

System firmware/software

Pascal

APPLE PASCAL, incorporating UCSD PASCAL,™ offers extended features in a complete, interactive package employing today's most sophisticated structured programming language. It provides advanced capabilities that boost performance and cut development time for large business, scientific, and educational programs.

The software package provides a powerful set of tools for the serious programmer:

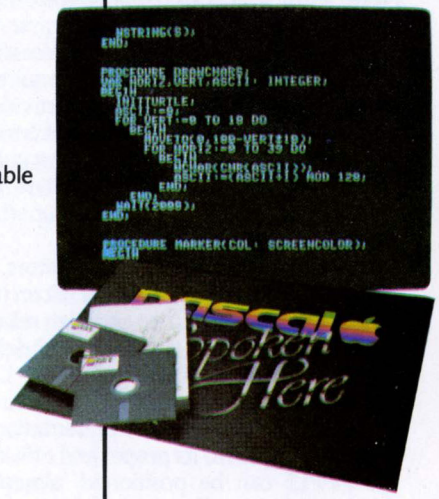
Editor

— Fast, screen-oriented editor for program development and word processing
— 80-character lines (upper/lower case) available with external CRT terminal
— 80-character lines supported in standard APPLE using horizontal scrolling.

Compiler

Standard PASCAL plus extensions for strings, disk files, graphics, system programming:

— Hi-Res:
  'Turtlegraphics':
  INIT turtle, PENCOLOR, TURNTO, TURN, MOVE, TEXTmode, GRAFmode.
— Text:
  — GOTOXY procedure for cursor addressing
  — Split screen or horizontal scrolling
  — FUNCTION Keypress tells whether character available
— Library Routines:
  — FUNCTION RANDOM
  — PROCEDURE RANDOMIZE
  — FUNCTION PADDLE
  — FUNCTION BUTTON
  — PROCEDURE TTLOUT
  — FUNCTION KEYPRESS
  — And more . . .



Relocatable assembler

Permits relocatable assembly language routines to be generated and linked to PASCAL programs.

Filer

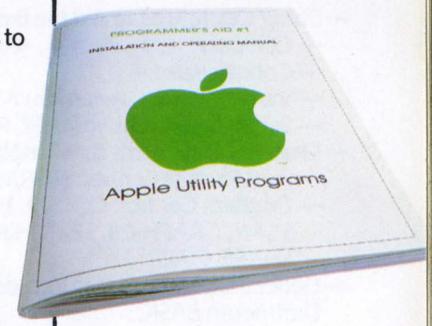
General purpose program for manipulating all system disk files.

System utilities

— DESK CALCULATOR — performs basic calculations
— PARAMETER — allows examination and modification of system operating environment.

PASCAL operates in a 48K APPLE II or II Plus with one to six disk drives and the APPLE Language System. An external 80-column terminal can be attached. The package includes:
Language Card
5 diskettes, including
Integer BASIC
Applesoft Extended BASIC
PASCAL System
IC puller
3 PASCAL manuals
3 BASIC Language manuals
Installation & Operation manual
(Order as the Language System: Number A2B0006)
UCSD™ PASCAL is a registered trademark of the regents of the University of California.

Programmer's aid No. 1



Programmer's Aid No. 1 is a ROM-based library of routines to simplify and enhance your Integer BASIC programs. Its capabilities include:
— High-Resolution Graphics Generation
— Program Renumbering and Linking
— Tape Verification
— Musical Tone Generation (12 timbres and 5 octaves)
— RAM Testing
— Machine Language Program Relocation

Programmer's Aid No. 1 is packaged as a single 2K-byte ROM to be inserted in a socket of the APPLE II. The routines upon which it is based are completely documented in the manual which accompanies the package. (Order No. A2M0019. Note: this ROM is now included in APPLE II computers.) This is included on the Integer Card (A2B0010)

Integer basic

This language is a fast integer BASIC that includes the following features (in addition to normal BASIC capabilities):
— Any-length variable names (ALPHA, BETA$)
— Syntax and range errors indicated immediately when entered
— Multiple statements on one line
— Integers from −32767 to +32767
— Strings to 255 characters; Single-dimension integer arrays
— Graphics Commands
— Paddle read function
— TEXT and Graphics Commands to set display mode from BASIC
— Immediate execution of most statements
— Break and Continue program execution
— Debug commands: line number trace and variable trace
— Switchable I/O device assignments
— PEEK, POKE, CALL, POP commands
— Auto line number mode
— RND, SGN, ASC, LEN and ABS functions
— GOTO expr, GOSUB expr allowed

Integer BASIC is supplied as on-board ROM in the APPLE II and is included with the APPLE Language System. The language is also available on the Integer BASIC ROM card.

Applesoft II extended basic language

Applesoft II is an expanded version of Microsoft's popular floating-point BASIC. Its 9-digit arithmetic and large function library make it ideal for business and scientific applications. Features like high-resolution graphics routines and user-programmable error messages make the language both powerful and easy to use. Capabilities include:
— 3 Data Types — Real, Integer, and String
— N-Dimensional Arrays and N-Letter Variable Names (first two letters significant)
— Extensive Mathematical, Logical and Scientific Capabilities
  — EXP, LN, SQ. RT., SIN, COS, TAN, ARCTAN
  — AND, OR, NOT, ABS, INT, RANDOM, SIGN

— String Operations to Aid the Business Programmer:
  — Compare: =, >, <, > =, < =, > <
  — Concatenate: +
  — Variable Type Conversion: ASC, STR, VAL
  — Substring Separation: LEFT, RIGHT, MID, LEN
— Graphics Statements that Simplify Display Programming:
  — Print Format Control: NORMAL, INVERSE, FLASH
  — Graphics Control: COLOR, PLOT, POSN, LINE DRAW, SCRN, GRAPHICS, TEXT, HIRES, ROT, SCALE, SHAPELOAD
— General Operations that Include and Extend Upon Dartmouth BASIC:
  — Program Manipulation: CLEAR, NEW, LIST, RUN, CONT, LOAD, SAVE
  — Variable and Function Definition: DATA, DEF. FUNCT, DIM
  — Data Handling and Storage: READ, RESTORE, STORE, RECALL
  — Loops and Branching: FOR . . . NEXT, IF . . . GOTO, IF . . . THEN, ON . . . GOTO, ON . . . GOSUB, ONERRGOTO, RESUME, GOTO, GOSUB, RETURN
  — Input/Output and Format Control: INPUT, PRINT, IN NO., PR NO., VTAB, TAB, HOME, PADDLE
  Machine Level Statements: PEEK, POKE, CALL, POP, LOMEM, HIMEM

Applesoft II is supplied as a diskette, tape, or plug-in ROM card; and is included in APPLE II Plus systems. The diskette version requires 32K RAM (48K for high-resolution graphics). The tape version requires 16K of RAM (32K for high-resolution graphics). The ROM version requires 16K RAM if high-resolution graphics are used. A comprehensive reference manual is included. (Order Numbers: A2B0009 — card, A2T0004 — tape.)

Applications software catalog
Business and finance

General business system — The Controller (GBS I)

THE CONTROLLER gives a business control of its revenues and expenses through General Ledger, Accounts Payable, and Accounts Receivable computer software. THE CONTROLLER is designed for a non-technical manager or clerk. It handles accrual bookkeeping, and can easily maintain the ledger, customer, and vendor accounts of many small businesses. THE CONTROLLER provides better control of cash flow, reduces paperwork, eliminates last-minute 'catch-up' accounting, prints checks and monthly account statements, and provides information in concise summary reports that allow a manager to make better decisions.

THE CONTROLLER has been designed with failsafe operation in mind. Its unique data entry system signals typing errors with an audible warning. It automatically makes copies of

data files for historical purposes, in case of loss of the originals. And it automatically prints reports before the system will allow the user to close out the monthly books.

THE CONTROLLER Business System consists of three program modules:

The GENERAL LEDGER module maintains a file of up to 250 types of journal accounts with up to $90 million in any one account. Up to 750 journal entries can be made per month, and a unique feature allows customer and vendor account transactions to be created and posted to the general ledger automatically, without redundant typing. The system produces detailed, easy to read management summaries of journal accounts, revenues, and expenses; as well as balance sheets and income statements.

The ACCOUNTS RECEIVABLE module maintains up to 250 customer files per data diskette (up to 3 diskettes can be used). Each diskette can handle 750 sale and payment transactions per month, and the balance-forward system automatically summarizes transactions into account ageing periods at month end. Individual transactions can be for up to $90,000 each. The system produces a detailed summary of receivables, organized by the number of days each bill has been outstanding (aged trial balance). Monthly account statements are printed automatically for customer billing purposes, with optional finance charges added to overdue accounts. The system also produces mailing labels, customer lists, and sales commission reports by salesmen.

The ACCOUNTS PAYABLE module maintains a file of 100 vendors and allows 300 invoices for up to $1 million each, or $90 million cummulative. Payables are organized by due date, so that in planning cash flow a business can customize bill paying to take advantage of discounts and varying net terms. Checks are printed automatically, along with summaries of cash requirements by due date and vendor. The system prints summaries of checks paid, new accounts, and a list of vendors.

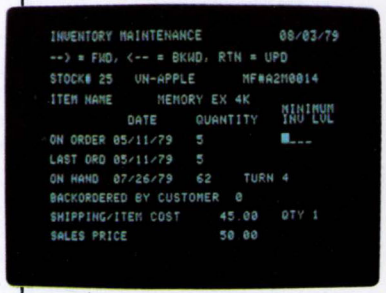
THE CONTROLLER is packaged in an attractive 3-ring binder with a manual and diskettes. It requires 48K RAM, dual disk drives, Applesoft BASIC language, and a Parallel Printer.

The Cashier

THE CASHIER is an inventory control and cash register simulation system. It simplifies the retailer's job by eliminating redundant work in filling out lists and forms. Once a customer account is entered, the information is automatically used to generate sales receipts, billing records, mailing lists, and accounting summaries. THE CASHIER also gives a retailer better control of inventory, resulting in reduced shrinkage.

THE CASHIER can process backorders, down payments and refunds, managing an inventory of more than 800 stock numbers.

The system is packaged in a binder with a manual and diskettes. It requires 48K RAM, dual disk drives, Applesoft BASIC language and a Parallel or Serial Printer.



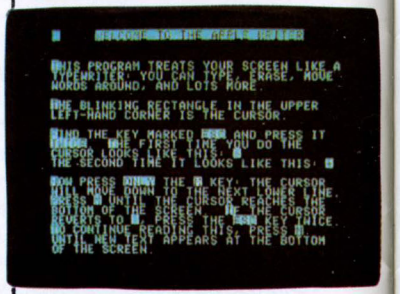
Visicalc

Visicalc is a new breed of problem-saving software. Unlike pre-packaged software that forces you into a computerised straight-jacket, Visicalc adapts itself to any numerical problem you may have. You enter numbers, alphabetic titles and formulas on your keyboard. Visicalc organises and displays this information on the screen — you do not have to spend your time programming! We see Visicalc as the ideal program to complete the package for the First-Time Business User who is capable and prepared to enter his information. The total display is made up of 64 columns and 256 rows — like a giant wall chart. To use Visicalc on the Apple Computer you require a 32K disc system. When a source field is changed, all related fields are recalculated automatically in a few moments. Play 'What if . . .' with your sales figures and assess changes etc. (Order No. E2D001)

Apple Writer

The APPLE WRITER gives you the ability to edit memos, letters, programs, or even a novel. You can enter text, delete mistakes, move blocks of text, save and insert segments from a diskette and search throughout the text or replace letters, words, or phrases automatically. Using the APPLE WRITER with a printer, you can print your edited material on paper, letter-perfect every time. (Order No. A2D0026)

The APPLE WRITER is packaged with a manual and a program diskette. It requires 48K RAM and one disk drive. For printing out documents, a printer and interface are necessary.



Payroll complete weekly/monthly system

The System is designed to process
Up to 100 employee records stored on one floppy disc, holiday pay in advance, automatic tax and NI calculations, standard deductions after tax, deals with Week 53 and give cash dissection.

The System displays a series of 'menus' to prompt the user. No special commands are required and user keyboard errors result in an audible warning and screen messages. All information entered at the keyboard is comprehensively validated, and a series of inbuilt checks to ensure that a payroll run cannot be duplicated. Requires 48K RAM, two disc drives, printer and interface.

Stock control, stock recording and stores, management

The availability of accurate up-to-date information on products held in store ensures that stock levels are minimised and reordering is accomplished correctly. This should result in lower operating costs and improved efficiency. Printed reports can be produced automatically giving product listings, price lists, stock shortage lists and stock movements. This saves valuable clerical time and minimises errors. An additional feature of the System is that each stock transaction is 'logged' and a 'daybook' printout is produced for audit purposes.

Up to 800 stock items may be stored on the system at any time on each mini floppy disc. For quantities of stock items larger than 800, then you simply use another floppy disc and so on to meet your particular requirements.

For each stock line the following details can be held:

- Stock Number
- Unit of Measure
- Minimum Stock Level
- Re-order Quantity
- Stock Description
- Cost/Sell Prices
- Quantity in Stock
- Issues Year-to-Date

Experience proves that users are capable of operating the System satisfactorily after only one hour of instruction.

Requires 32K RAM, two disc drives, printer and interface.

Estate agents property and applicant matching system

Developed in conjunction with a leading firm of Chartered Surveyors and Estate Agents. This MicroBASE Computer System is a cost-effective aid to residential property sales which quickly matches the property and applicants and vice versa. The System is ready to use and does not need specialist operators.

The following routines are provided:
Registration of Applicant followed by optional property matching with printed list of suitable properties
Registration of Property followed by optional Applicant matching with printed list of suitable applicants' names and telephone numbers and names and addresses for self-adhesive labels.
Amend Applicant details followed by optional property matching
Delete applicant
Amend property details followed by optional applicant matching
Delete property
Print all Applicants
Print all Properties
Selective name and address list, with multiple selection criteria
Selective label print, with multiple selection criteria
Each Floppy Disc will hold 440 Applicant Records and all routines are set up to accept multiple applicant record discs
One Floppy Disc will hold 505 Property Records
Requires 32K RAM, two disc drives and interface

Mailing List, Name, Address & Reference Recording and Management System

This Programme is a complete name, address and reference recording and management system for use in a wide variety of business operations.

Each file of information is held on Floppy Disc. The mailing list record contains the following information:—

- Company Name
- Address
- Contact Name
- Telephone Number
- 20 Characters of notes
- 20 Characters of notes

Up to 375 records can be held on each Floppy Disc.

You are able to print all records or various selections on to paper or 1, 2 or 3 up self adhesive labels.

Requires 48K RAM, two disc drives, printer and interface.

Apple Post

APPLE POST is a data base system that handles the creation and maintenance of mailing lists of up to 500 names per diskette. It allows for easy entry and editing of names addresses and phone numbers, and can print lists or actual labels in order by name or zip code. APPLE POST makes it possible to locate names and phone numbers quickly, and uses a unique 'phonetic search' feature to locate names even when correct spelling is not known.

The mailing list system is packaged including a manual and program diskette. It requires 48K RAM, 2-6 disk drives, Applesoft BASIC language, and a Parallel Printer. (Order No. A2D0013)

Education

Education series: The Shell Games

THE ANIMATED APPLE

The intriguing story of how APPLE grew from a tiny flower . . . See it all in this engrossing cartoon.

MATCH MACHINE

The Magnificent Match machine displays two columns of words that match. One of the columns is scrambled. Your job is to straighten them out! When you have matched every match, make up your own list on any subject. The Match Machine will help you make them a permanent part of the program.

PROFESSOR TRUE

A true/false quiz at its finest, Professor True will ask you interesting questions and then tell you something more about it. For example: The most famous naval battle of the Civil War was between the Monitor and the Virginia. True or False?

When you've mastered what the professor has to offer, create your own quizes; the Shell Games editor makes it fun and easy.

MR. MULTIPLE

When did the first nuclear reactor go critical? Who played the dog on TV's Cosmo Topper? How should you dress for 15 degrees Celcius? If the answers to these burning questions are keeping you awake nights, Mr. Multiple is for you.

And if you know all the answers, how about making up some questions, using the built-in Shell Games editor.

THE SHELL GAMES is packaged to include a manual and a program diskette. It requires 48K RAM, Integer BASIC, and one disk drive. (Order No. A2D0014)

Utility

RAM TEST

A test program that provides peace of mind during RAM expansion by testing the installed RAM (Order No. A2T0006)

DATAMOVER

A program used to move data and programs from one APPLE computer to another over the phone lines (Order No. A2T0012)

Entertainment

Stellar Invaders space war simulation

APPLE TREK SPACE WAR

Apple's version of the popular galactic warfare game. Supplied with: Man the guns of a rebel starship and try your marksmanship. (Order No. A2T0002)

BRICK OUT

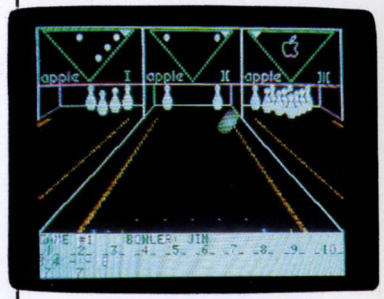
Knock all the bricks out of the playing field and you're a winner! (Order No. A2T0003)

CHESS

Try your skill at this ancient game of strategy. Plays at eight levels of skill, so you're always evenly matched. (Order Nos. A2T0013 — tape, A2D0009 — disk)

APPLE BOWL

Enjoy this realistic simulation of a bowling alley. You have complete control of the ball; APPLE keeps the score. (Order Nos. A2T0015 — tape, A2D0018 — disk)



Contributed software

The contributed Software section of Apple Software Bank supplies programs to handle a wide range of applications. Currently available programs are supplied on an 'as-is' basis in a series of five volumes (Contributed Software Vol. I-V).

The volume number to consult for each program is shown in parenthesis right after the program title.

Business

FILE CABINET (3)

General data base for storing, searching, and sorting lists of all types of data.

Education

COLOURMATH (1)

Colour/sound quiz in basic arithmetic

HANGMAN (1)

Colour/sound guessing game that builds word skills

MASTERMIND (1)

A popular strategy game that builds logic skills.

THE INFINITE NUMBER OF MONKEYS/Integer Basic Subroutine Package (5)

Combining an enjoyable animated story with a serious exploration of advanced programming techniques in Integer BASIC.

ENGINE (3)

HI-RES animation of an automobile-type gasoline engine, including a manual step-through mode.

THE GREAT AMERICAN PROBABILITY MACHINE (5)

Intuitive exploration of the laws of probability through LO-RES animation.

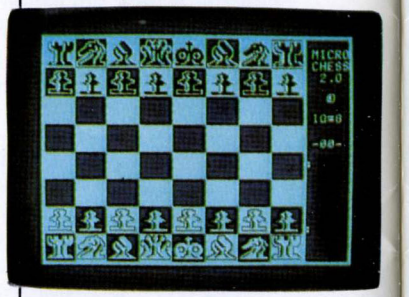
CALIFORNIA DRIVING TEST (5)
A practice test for California drivers and a fine example of educational programming for all.
HAMMURABI (1)
A fascinating economic simulation of a small agrarian country. The lives and prosperity of its inhabitants depend upon the player's decisions.
MORSE CODE (1)
APPLE II now has a perfect fist over a wide range of speeds, for those who want to build their skill at Morse Code.

Scientific Calculation

BONE TUMOR DIFFERENTIAL DIAGNOSIS (1)
To assist qualified medical practitioners in the diagnosis of bone pathologies.
AIRFOIL (3)
HI-RES graphics program that will plot the shape of an aircraft wing given the parameters.

Utility programs

HI-RES GRAPHICS (3)
A package of graphics routines to assist the user in plotting on the HI-RES screen.
HI-RES CHARACTER SET (3)
A program to put characters on the HI-RES screen.
HEX CONVERTER (1)
Converts numbers between bases 10, 16, and 2. Simple sums and differences in these bases can also be computed.
INTEGER BASE CHR$ FUNCTION (1)
This program gives you the same ability in integer BASIC that the CHR$ function delivers in Applesoft BASIC.
INTEGER BASIC RENUMBER AND APPEND (5)
A programmer's aid to renumber entire programs or 'glue' one program to another.



Apple documentation

Apple documentation

APPLE products come with complete documentation for users at every level of technical expertise.

APPLE II integer BASIC programming manual

This manual starts from the beginning and guides the user's first programming efforts. A humorous style and abundant examples make this the ideal textbook for newcomers to personal computing. (Order No. A2L0005, 125 pages. Supplied with APPLE II systems.)

APPLE II reference manual

This manual addresses the details of the system: hardware schematics, firmware listings, special system features, and use of the monitor. It is aimed at the user who is comfortable with BASIC and wishes to become familiar with the advanced features of APPLE computers. (Order No. A2L0001, 151 pages. Supplied with APPLE systems.)

Applesoft BASIC reference manual

This extended BASIC reference manual is written for the user who is familiar with the BASIC language. (Order No. A2L0004, 170 pages. Supplied with APPLE II Plus systems).

Applesoft BASIC tutorial manual

This manual is for the extended BASIC beginner. It provides programming examples and a detailed explanation of the language. (Order No. A2L0018. Supplied with APPLE II Plus systems.)

6500 microprocessor hardware manual

This manual is directed at the hardware designer who wants detailed information about the 6502 microprocessor used in the APPLE. (Order No. A2L0002, 165 pages.)

6500 microprocessor programming manual

This manual addresses the internal structure and assembly language programming of the 6502 microprocessor. It assumes that the reader is moderately familiar with computer concepts. (Order No. A2L0003, 239 pages.)

Disk II reference manual

The Disk II Reference Manual explains the installation and operation of Disk II Hardware. It also provides a comprehensive introduction to Apple's Disk Operating System software. (Order No. A2L0012. Supplied with Disk II and Disk Utility Pack.)

APPLE pascal reference manual

This manual provides complete information on those elements of the Pascal operating System that are particular to the APPLE implementation. It is written for readers who are already familiar with the Pascal language. (Order No. A2L0019. Supplied with the Language System.)

Extended Warranty

Whether you manage a business, teach a class, or keep a home running smoothly, you probably watch your budget very closely. And nothing can unbalance that budget more quickly than an unexpected expense.

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- annual renewal;
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Apple has become a leader in the personal computer industry by providing the best products available on the market – and keeping them the best by finding ways to improve them. When you're part of the Apple Extended Warranty Program, any corrective update to Apple system software is yours – free. System software includes Integer BASIC, Applesoft II BASIC, DOS, Apple Pascal and many more.

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The Apple Extended Warranty covers all your Apple manufactured products — including those you buy during the one-year extended warranty period. You don't have to purchase additional coverage or another warranty.

* Annual Renewal.

Your Apple Extended Warranty may be renewed in one-year increments. Although the price in future years can't be guaranteed, you're assured of the same outstanding coverage – and benefits – that you enjoyed in the first year.

* An Apple Special Option.

Although Apple recommends – for your maximum protection – that you buy your Extended Warranty with your system, Apple gives you the option to do so at any time. However, should your Apple be out of its initial 90-day warranty period, you'll need to take it to your local service dealer for an owner-paid inspection before you can purchase the Extended Warranty.

* Your Apple Extended Warranty – A Closer Look.

Your Apple Extended Warranty will be presented to you in an attractive folder – designed for easy, convenient storage. Inside you'll find:

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- A document containing all terms and conditions of the warranty.
- A warranty agreement in triplicate – one copy for you, one for your local dealer, and one for Microsense.
- Warranty validation labels to identify your warranty and prevent others from using it.