apple® computer inc.

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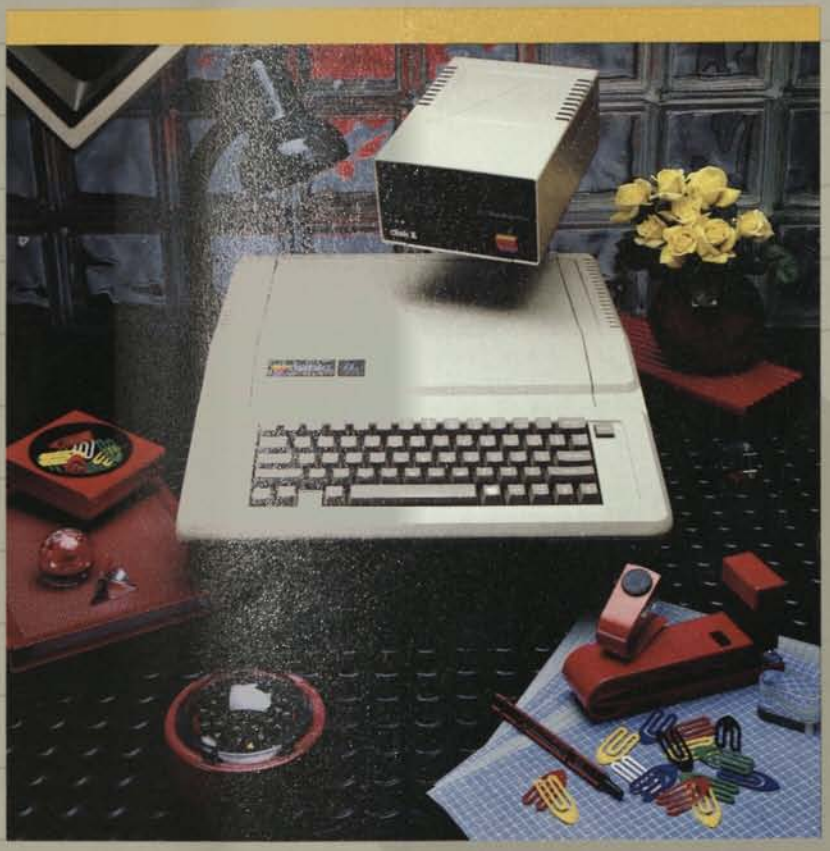
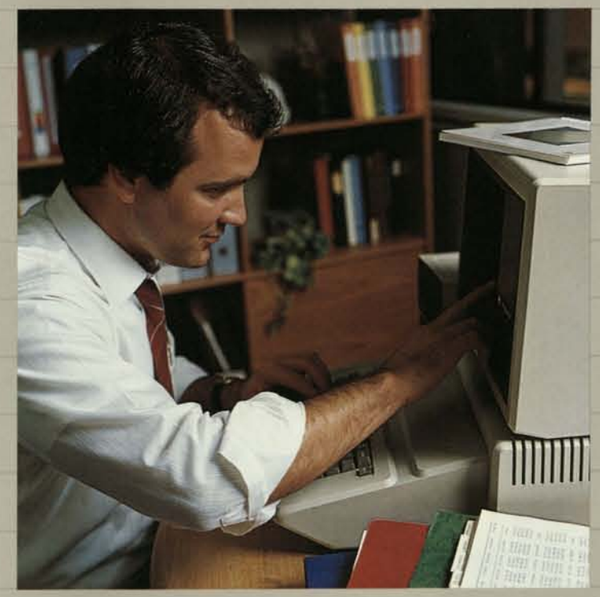
Printed in USA

# The Apple *IIe*

Personal Computer System





Whatever your personal goals, and whatever the scope of your activities or business, the Apple //e can contribute greatly to your success—possibly more than any other investment you'll make this year.

## The Apple Advantages.

With more than three-quarter million computers installed worldwide, Apple ranks first in the personal computer industry with more software programs available for its computers than any other company.

We invented the affordable personal computer for home and work at a time when minicomputers were the outstanding technology.

Today we continue to dedicate our efforts to the personal computer... to make your learning, work, and play time more productive, more creative, and more manageable.

## You're in control.

The Apple //e Personal Computer System is a continuation of our commitment to your personal productivity—present and future. Because it puts you in control of day-to-day activities in a variety of situations.

Like gathering and storing facts and figures. Planning corporate or family budgets. Allocating resources. Polishing presentations.

Taken together, the advantages of personal computing on the Apple //e mean taking personal control of vital information-gathering and decision-making.

Once you've settled down to business with the Apple //e, you'll be impressed with how it handles your information needs.

But perhaps just as important—you'll discover frontiers unknown to you now and, in the process, explore your own potential for growth and creativity.

# Who in The World Uses the Apple. And Why.



## Apple does, for one.

We know that a computer strategy is important to all areas of our operations.

At Apple, we compute facts and figures more efficiently with Apples. Budget and forecast more accurately. Manage tasks and data more efficiently. Satisfy and encourage the personal involvement of our employees. And control bottom-line priorities.

In every corner of the world, Apples are used by business people at work. By families and students at home or school. By scientists in laboratories and universities. By teachers in classrooms and industry. And by others in thousands of applications from the typical to the extraordinary.

## The Apple *//e* means serious business.

Information is missing. Time is lost. Decisions are questionable. It happens all too often in business.

You need to see the picture at many levels and control your time and your productivity. That's where an Apple *//e* can make a difference. So you can get facts quickly, organize your time, get a handle on numbers, and adjust for changes.

You can keep records and files up to date, simply and quickly. Access critical facts. Create "what-if" scenarios and solve problems. Enhance your presentations. Dramatically increase engineering data precision and standardization. Manage cash and budgets. Reduce wasted paper, labor, and time. Communicate more effectively.

And replace a lot of "dedicated" special-purpose objects, such as pencils, calculators, typewriters, files, and even mail.

You're free to manage your time and efforts better, and pursue ideas and opportunities. You're personally in control.

## Orderly growth for the fast-paced enterprise.

Perhaps you're an entrepreneur or small-business principal. You're making plans that require well-placed attention and timely decisions. You can't afford to have strategies backfire, details trip you up.

Use the Apple *//e* for word processing memos, reports, proposals. Dedicate it to accounts receivable and payable, payroll, inventory control, and general ledger. Delegate it to know when to take discounts, to track late-paying customers, to manage cash flow.

Turn it into a letter carrier with electronic mail. Make it a smart terminal to talk with a mainframe or timesharing system.

In other words, don't bury yourself in details if you don't have to. And rediscover the time to wrestle with priorities that the computer can't handle.

## Infinite personal resources under one roof.

Ever decide to analyze spending for the year, and come up with a workable budget—only to find cancelled checks, tax records, and receipts scattered to the four corners of the house?

Whatever your goal, there's a solution to the loss of vital information.

With the Apple *//e*, you can manage that budget. Students can master lessons interactively with the computer. The family financier can do bookkeeping. The investor can watchdog and manage stock, real estate, and investment portfolios.

The moonlighter can perform entire business transactions. The tinkerer can control lights, alarms, pool, or sprinklers.

Anyone can work efficiently at home in his or her own Office of the Future. And everyone gets a well-earned timeout for mildly (or wildly) addicting computer games.

## A new approach to education.

As subjects become more complex and educational needs more diverse, the traditional teaching tools can no longer do it all. They must be more sophisticated, yet affordable enough to fit a budget.

There has to be a better way. And there is.

Students save time and effort in gathering, analyzing, and reporting facts—and in writing and editing reports, papers, and assignments.

With the Apple *//e*, teachers can develop exciting instruction and visual aids, administer testing with on-the-spot feedback to students, grade responses, measure program effectiveness, and keep records any way they like—with just a few keystrokes.

Quick learners learn even faster. Slower learners can pace themselves while lowering the frustration factor. The handicapped enter the mainstream more confidently.

You'll see more than just drill and practice with an Apple *//e*. You can tap the resources of other data bases, computers, and developed lessons. Teach yourself (and your students) any level of programming. Develop powerful training and computer-aided instruction (CAI) for specialized needs. It's still an open book.

## Precise control of the scientific parameters.

Quality of information integrated with reliable hardware can be more important to engineers, scientists, and researchers than perhaps anyone else.

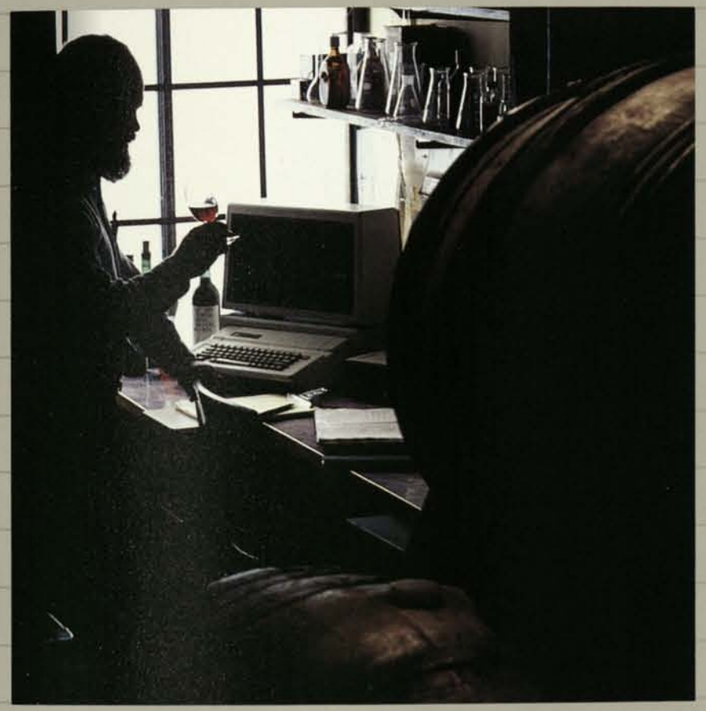
With an Apple *//e*, you'll exercise greater control over all operations. Consider a low-cost, intelligent terminal for networking and communicating with mainframes.

High-level languages like FORTRAN and Pascal. Support of industry standard interfaces such as the IEEE-488. Analog to digital and digital to analog converters. Computer-aided design (CAD). Voice output and recognition equipment. Process and instrument control, and tailor-made microprocessor-controlled devices.

And when you're ready to expand your operations, the Apple *//e* is designed to provide optimal growth avenues.

In addition to speeding up the research process, you'll have the advantages of personal computing in day-to-day operations such as record-keeping, writing, budgeting, and calculating. You'll find the Apple *//e* gives you precise parameters—on time and on target.

# What You Can Do Better Than Ever Before. And How.

The Apple //e gives you more options than any other personal computer to make the most of your resources, centralize information, and impart orderly control—in a way you've never seen or thought possible. By incorporating the Apple //e into your operations, you'll see results immediately, and with minimal investment.

## Financial Planning and Modeling for Corporations and Small Businesses: Tying together the pieces in one smart location.

The Apple //e makes it easy for you to develop and execute customized planning and analysis—without experience in computer programming.

Administrators can plan budgets, compare actuals with forecasts, and modify projections. Sales and marketing managers can develop accurate forecasting models, pricing strategies, and sales plans. Accountants can calculate rates of return, design pro formas, and draft financial statements.

You can use a spread sheet program for precise, sophisticated financial modeling. For example, you can consolidate budgets, profit and loss statements, cash flow projections, forecasts, and more. Complex calculations are done quickly and precisely, and some software lets you merge as many models as you wish into one—all with easy-to-follow commands.

If you're in charge of a small business and often wonder where your time goes, the Apple //e can answer important questions. Who is paying bills on time? Who's not? What's tied up in receivables, payables, inventory? How can payroll be streamlined? Accounting packages for the Apple //e are available that can free up your time from important but time-consuming tasks—for more profitable use of your management time and talents.

## File and Project Management: Taking control of vital information.

Finding, sorting and centralizing information that you can use exactly when you need it means efficiency. Using a typical data base management program, you just key in data and later decide on the most useful order. Then selectively print out file listings when you need them.

Once an important project is identified, you can schedule, track, and analyze the milestones. You can generate project status reports and charts, and pinpoint the critical paths and project costs. Any time along the way, you can create "what-if" scenarios of complex tasks to help you make tough decisions.

You can share data bases, communicate among systems, and take advantage of thousands of programs from Apple as well as outside software developers.

For both business and personal record-keeping you can find a program to organize cash and credit card payments, tax records, checkbook statements, and various finances—in one location.

## Editing and Word Processing: Revolutionize word and number gathering.

One of the major benefits of the Apple //e's personal approach is versatility. Because when you're through calculating, modeling, forecasting, and any of hundreds of other uses, you can take care of the briefest of memos—as well as the longest of books.

You can quickly create and edit text, and also format headers, footers, paragraphs, pages, and tabs according to your specifications. You can view different portions of your document in 40- or (with optional card) 80-column format, access a custom-made glossary, move around to different locations in your text, and merge text with other programs such as spreadsheets. You'll be delighted to find you can print out reports as complicated or as plain as you want them.

Whether at home, school, laboratory, or office, rest assured that with an Apple //e you can change your mind without changing your deadlines.

## Business, Presentation, and Design Graphics: Add style and originality to your persuasive messages.

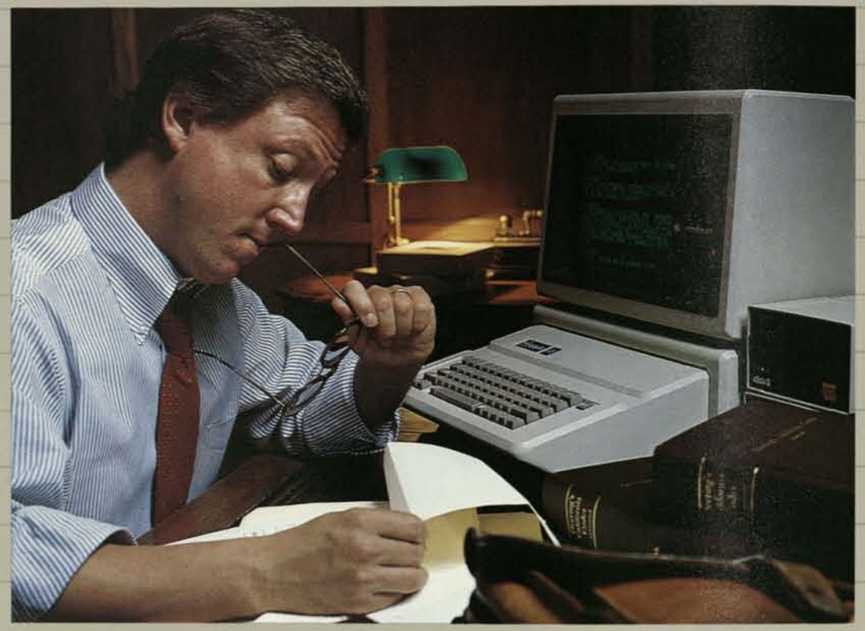
Nothing gets to the heart of a message as quickly as a finely-tuned graphic presentation.

You can use the Apple //e to assemble facts and figures, convert data to visually appealing charts and graphs, and hook up to a suitable printing or plotting device. So you can produce condensed visuals, make sense of massive amounts of data, spot trends, pinpoint priorities, and identify potential hotspots.

For example, save hours of drawing and design time for depicting any activity including sales, stock performance, calorie consumption, and miles per gallon. You specify each axis, and the Apple //e will help you create a bar, line, or scatter chart for transparencies or reports. Then update any information at any point. Label the charts exactly as you wish. And color it all for maximum visual appeal.

You can perform curve-fitting and trend-line analysis. Produce pie charts and horizontal bar graphics. Plot two or more graphics on the same set of axes. And perform a few more extraordinary things you've never been able to do so simply—without programming knowledge.

The Apple Graphics Tablet lets you make and display block diagrams, architectural renderings, logic diagrams, schematics, mechanical shapes—and even fine art.



## Educational Software: An exciting new realm of possibilities for school and home.

No matter what the setting, educators have found that an Apple personal computer can transform the learning process. Assignments are more individualized, creative, and open ended. Teachers have more time to channel personal attention. Bright students move even faster. The handicapped are motivated to participate.

Aided by an Apple, you can teach everything from bridge to astronomy. Help kids learn to spell, recognize words, understand arithmetic concepts, and sharpen problem-solving. Compose music and play (with internal speaker) your own compositions. Learn U.S. geography and capitals more enjoyably. Or breeze through a primer on BASIC programming.

In addition to basic skills, the Apple can help in specialized education such as advanced computer programming and industrial training.

You'll find these and hundreds of other programs by Apple and other sources that provide the best in educational design—aided by the most popular personal computer in history.

## Telecommunications: Instant worldwide mail, telegrams, news, and stock quotes.

Because your Apple can be connected (via low-cost modem) to telephone networks, you can sit back while your computer directly accesses timely data.

For instance, your Apple can send and receive letters and messages instantly from other microcomputers. Send Mailgrams. Send and receive TWX, Telex, and international cables. You can order flowers and wire money. Check headlines and research stories from the Wall Street Journal, and even catch the latest sports and weather information in major cities.

Nothing requires special installation or expert consultation. Your Apple *//e* keeps everything running without programmers. And if you don't want to sit back and watch, we're sure you'll use the free time to your advantage.

## Programming: Virtually endless possibilities for creative development.

The Apple *//e* speaks several languages fluently, including BASIC, Pascal, SuperPILOT, and Logo. You'll also have access to a library of CP/M® based programs.

® CP/M is the trademark of Digital Research, Inc.

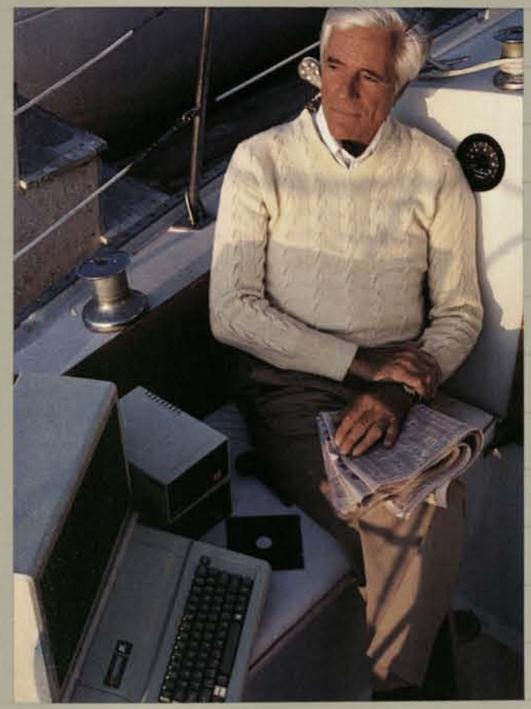
This flexibility is one reason why computer science teachers choose Apples for the classroom. Cost effectiveness is another reason. The Apple *//e* system is equally valuable in engineering, math, and science courses, where students may be problem-solving in BASIC or Logo, or developing application programs in Pascal. Teachers and trainers can construct interactive lessons with SuperPILOT and its graphics, animation, and color capabilities.

For all your creative and professional computing needs, there's a solution. Write your own software, or choose from the thousands of BASIC programs already available. Use Pascal for structured applications and port both programs and data to an Apple *///* if desired. Take advantage of our powerful built-in Applesoft BASIC that is easy to learn and use. Along with other languages, you'll also find programming tools such as graphic libraries, editors, assemblers, and debuggers.

## And everything in between.

You'll have access to a vast and constantly growing electronic library. Ask your dealer about current developments in software and peripherals, and other Apple literature and directories.

# The Apple *//e*—The Most Versatile Personal Computer in Its Class.



One of the most rewarding aspects of owning the Apple *//e* is its amazing versatility. Once you've matched your Apple to your immediate needs, you'll discover endless ways to save time and bring down costs.

## The Apple *//* family's latest.

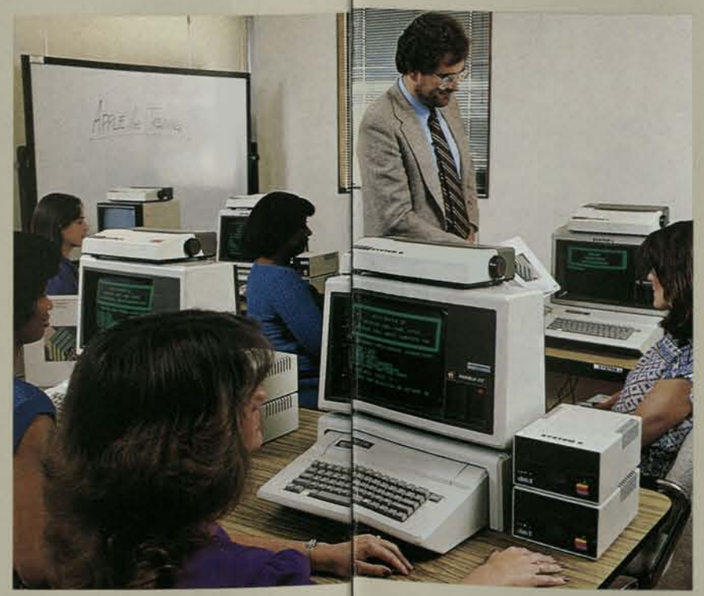
Designed from the start to make the most popular personal computer even better, the powerful Apple *//e* provides many advantages to increase your efficiency and productivity. You'll also find several significant features never before built into the Apple *//*, that give you a wealth of benefits.

***Solution Power: 64K bytes of user memory.*** The Apple *//e*'s internal memory provides more than enough room to handle your data and programming needs, and plenty of space to accommodate the vast body of business, educational, scientific, and other programs immediately available from many sources. And should you wish to add on another 64K of memory, a special-purpose slot allows you to plug in a card for this purpose.

***Customized expansion.*** The Apple *//e*'s eight expansion slots allow you to personalize and expand your system by means of peripheral and interface devices manufactured by Apple and others. This also allows for technology that will offer even more memory by means of a single text card, and access to personal mass storage devices.

You can choose from a wide range of options such as numeric keypad, printers, plotters, joysticks and hand controls, audio and video devices, modems, networking, mainframe communications, and much, much more.

***Ample data storage.*** Disk II is Apple's floppy disk subsystem designed to help you store and retrieve data smoothly and effortlessly. Each flexible disk allows you to store the equivalent of 35 single-spaced, typewritten pages. Each Disk II drive comes with the Disk Operating System (DOS) program when you purchase a Disk II with controller. Because each controller supports two disk drives, you'll be able to attach a second drive to it when you wish to expand your system. And you can expand to as many as six drives.



***Color graphics and sound effects.*** Enjoy the advantages of both high- and low-resolution graphics in 6- or 16-color choices with your Apple *//e* connected to a color monitor or television. With video and audio attachments, you'll add important new dimensions to instruction, presentations, and games.

***Portable design.*** Apple built the Apple *//e* with significant safety, convenience, and compact design features. By means of D-style connectors on the back of the computer, you can quickly connect or remove any peripherals without the inconvenience of opening the case. You'll also find that when you need to travel with it, the Apple *//e*, weighing in at 12 pounds, fits compactly in small spaces and under airplane seats. Safety features include: lockable case lid; power-on light both inside and outside of the computer; and UL and FCC approval.

***Full ASCII* keyboard.*** The Apple *//e* keyboard is as comfortable and easy to use as a standard typewriter. The 63 keys provide 128 different characters (96 printable characters) to satisfy everyday business as well as scientific uses. Video or printed output duplicates a perfect typewritten page, with both upper and lower case. Additionally, the Apple *//e* provides 80-column screen capabilities (with optional card) and automatic repeat for every key.

*American Standard Code for Information Interchange

***Special-purpose keys.*** Apple *//e* special-purpose keys serve a variety of purposes, including time-saving text entry and editing. Easier, more efficient software development. And use of software languages available now and later. CONTROL, CAPS LOCK, ESCAPE, and RESET functions mean you can move around infinitely easier and quicker in all of your operations. ARROW UP, DOWN, LEFT, or RIGHT, and TAB let you move your cursor precisely where you want it in a fraction of a second. Programmable OPEN-APPLE and CLOSED-APPLE keys let you decide what sequences you wish to combine into one key—for anything from line spacing while printing, to exotic scientific applications. DELETE allows you to erase characters in programs designed to utilize this feature.

***Built-in self testing.*** At any time you wish, you're able to run your Apple *//e* through a series of built-in diagnostics that check for normal operating status.

***Easy manuals.*** No one takes more seriously than Apple the task of producing straightforward, easy-talking manuals. Your Apple *//e* owner's manual guides you through start-up, step by step, and gives you a glossary of terms and index. So you won't need a technical dictionary or a mechanic. And you will be using your Apple *//e* within hours of set up.

***Local and worldwide service and support.*** No company can truly serve its customer base without adequate support once the system is out its doors. At Apple, we stand by our commitment to provide quality service, training, and follow through. Ask about our more than 2500 local service centers, 24-hour Level I services, and hotline trouble-shooting.

***Comprehensive warranty.*** Apple's 90-day limited warranty covers your system and any Apple-made products. After that, AppleCare, Apple's extended limited warranty, is available to cover your Apple *//e*, renewable yearly.

***More literature.*** Apple produces catalogs, brochures, data sheets, magazines, and even books to help you find whatever products and information you need. Your dealer also supplies several directories of Apple-compatible products.

***The competition.*** No other personal computer company puts so many features in one machine. And makes it so easy to add onto. And gives you everything you need at one affordable price. Simply compare the quality of our presentation to anyone else's, and we're sure you'll pick an Apple *//e*.

***Visit the expert—your dealer.*** Worldwide, Apple supports a network of more than 2000 dealers—so chances are there's one close by. Your full-support dealer is specially trained to evaluate your needs, recommend solutions, and provide after-sale support. Ask for a demonstration. And get acquainted with how you can do just about anything better than before with the Apple *//e* Personal Computer.

## Apple Computer Regional Sales Offices

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(214) 385-3553

**IA, KS, MO, NE, South IL**
700 Office Parkway, Suite 27
St. Louis, MO 63141
(314) 432-7883

**MN, ND, SD, WI, North IL**
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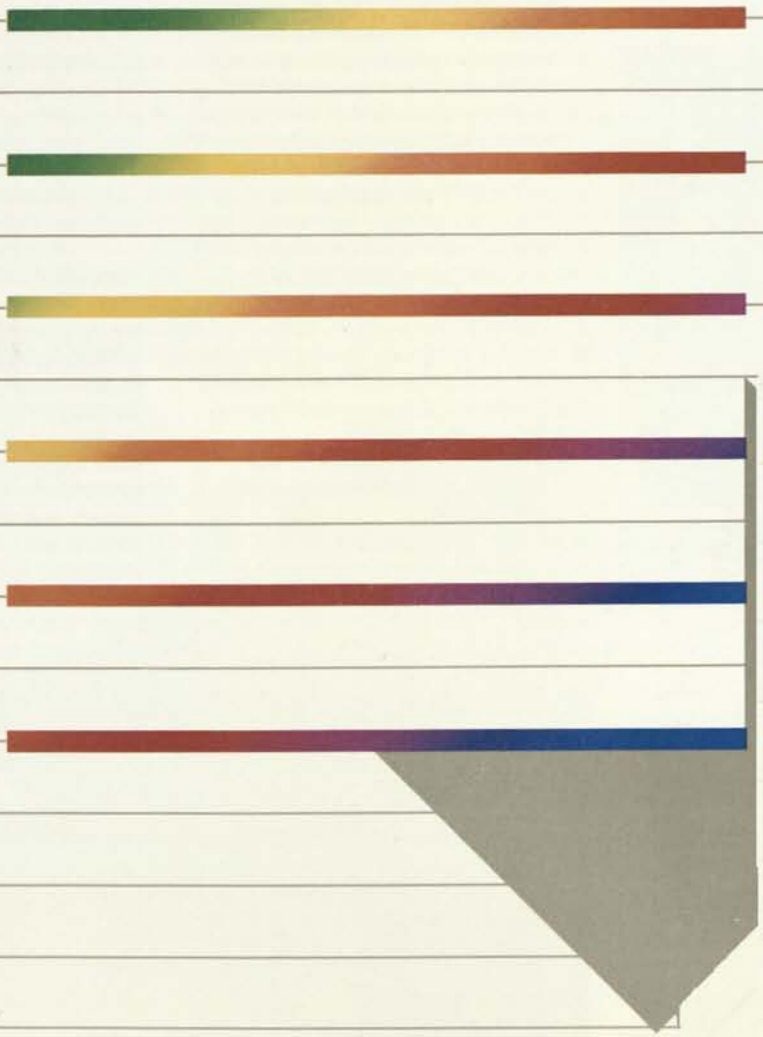

# The Apple *IIe* Personal Computer System

## 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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®CP/M is a registered trademark of Digital Research, Inc.

apple computer

20525 Mariani Avenue
Cupertino, California 95014
(408) 996-1010
TLX 171-576



A2F2093 1.4M 9/82

PRINTED IN U.S.A.

# IT'S TIME KIDS STARTED USING STRONG LANGUAGE.

We encourage it.

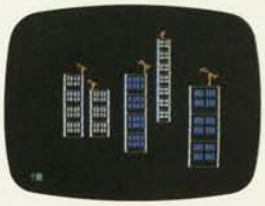
Because now the most powerful educational language is available on the Apple Personal Computer.

Presenting Apple Logo.

It's not just a programming language for computers, but a learning language for people.

Enough so that anyone, working with Apple Logo, can easily learn the programming principles once reserved for college courses.

Apple Logo encourages you to break problems into small steps, and then shows you how to make those steps automatic.



It does all this interactively.

For instance, if you accidentally type "foreword," instead of forward, Apple Logo responds with "I don't know how to foreword."

There is no such thing as a mistake with Apple Logo, only logical statements telling you what needs to be done to make the program work. So the student programs the computer. Not the computer the student.

And as you learn, Apple Logo learns with you. So whether you're a student of 5 or 55, you'll always be challenged—but not overwhelmed.

Apple Logo runs on the Apple II with 64K. And it comes from Apple, the leading personal computer company in education—with the largest library of courseware at all levels.

Apple Logo. It can make getting to know a computer the most positive of learning experiences.

Your kids will swear by it.

The personal computer.

apple

For more information, call **(800) 538-9696.** In California, call **(800) 662-9238.** Or write: Apple Computer Inc., 20525 Mariani Avenue, Cupertino, CA 95014.

**Apple® Logo is a product of Logo Computer Systems, Inc., 222 Brunswick Boulevard, Point-Claire, Quebec, Canada H9R1A6.**

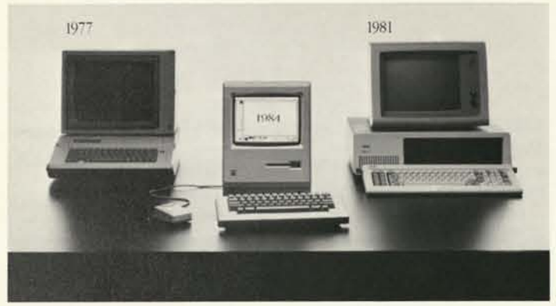
# Macintosh Selling Guide

Welcome to Macintosh.

Now that you're a part of the Macintosh team, you'll be sharing in the success and excitement of selling the most exciting personal computer ever developed. And Apple has created this Macintosh Selling Guide to start you off right. You'll find that the Macintosh™ personal computer is not only one of the most powerful computers, it's also easy to learn and use...and sell.

## It's not just another personal computer. It's already becoming an industry standard.

To create a standard, you need more than just a good product. You need to capture the enthusiasm of the public — and the commitment of the industry. It has been done only twice before.




In 1977, Apple introduced the Apple II personal computer. Quickly, it became the most popular computer on the market, and the first industry standard in personal computing. Then, in 1981, IBM introduced its personal computer, which eventually became the second standard in the development of personal computers. Now it's 1984, and Apple has introduced Macintosh — an advanced personal productivity tool that is quickly becoming the third industry standard.

But don't just take our word for it: ask the Macintosh software team. You already know them because they're some of the most respected software developers in the business.

*"Macintosh is much more natural, intuitive, and in line with how people think and work.... It's going to change the way people think about personal computers.... Macintosh sets a whole new standard, and we want our products to take advantage of this."*

***Mitch Kapor,** President & Chairman of the Board, **Lotus Development Corporation***

*"If you were to put machine 'X' on the table and a Macintosh on the table beside it, and then put up PFS software on both machines — like a taste test — we think Macintosh's benefits would be obvious."*

***Fred Gibbons,** President, **Software Publishing Corporation***

*"To create a new standard takes something that's not just a little bit different. It takes something that's really new and captures people's imaginations. Macintosh meets that standard."*

***Bill Gates,***
*Chairman of the Board & CEO,*
***Microsoft Corporation***

"When we started developing Macintosh, we knew it had to give people the computing power, ease of use, and flexibility they need at a moderate cost. To fit their workstyle. To take over their deskwork, not their desks. To go where they need it."

To accomplish our design goals, we incorporated these four key points that collectively distinguish Macintosh from all other personal computers:

1. Lisa Technology
2. 32-Bit Architecture
3. Personal Productivity Software From Leading Software Companies
4. One Transportable Box

**Lisa Technology**

Macintosh incorporates the innovative technology that made Apple's Lisa™ system a breakthrough in personal computing. Lisa Technology represents a $50 million investment in developing an advanced software technology — a technology that has forever changed the use of personal computers.

It has provided your customers with true ease of use, ease of learning, and software integration through the following features:

- Simple, consistent, pull-down menus throughout different programs
- Mouse-driven commands (simply point and click)
- Ability to cut and paste information between applications
- High-resolution, bit-mapped graphics
- Screen display of familiar desktop objects

**32-Bit Architecture**

Macintosh has the heart of Lisa, so it's fast and powerful. The kind of performance and flexibility found in Lisa Technology could only be accomplished with 32-bit processor technology — performance that just couldn't be accomplished with 16-bit processors. This includes:

- 32-bit Motorola 68000 microprocessor with an 8MHz clock
- 192K standard memory, including 64K ROM (containing Lisa Technology operating functions) and built-in 128K RAM
- Built-in disk drive with additional 400K on-line storage expansion
- Sophisticated built-in graphics capabilities

*16-bit 8088 microprocessor*

*Macintosh's 32-bit microprocessor*



**Personal Productivity Software from Leading Software Companies**

Macintosh is backed by Apple's strong commitment to ensure an abundant supply of personal productivity software. Leading software developers such as Microsoft Corporation, Lotus Development Corporation, and Software Publishing, Inc. are already introducing applications designed to take advantage of Macintosh's power, ease of use, and software integration.

In fact, over 100 third-party developers started creating outstanding software for Macintosh months before its introduction. Here's just a sample of some of those developers...

**Applied Software Technology**
**Great Plains Software**
**Aardvark/McGraw Hill**
**Business Solutions, Inc.**
**Continental Software**
**Hayden Software Co.**
**Microsoft Corporation**
**Software Publishing Corp.**
**AgDisk/Harris Technical Systems**
**Ashton-Tate**
**Logo Computer Systems, Inc.**
**Infocom**
**Southwestern Data Systems**
**BPI Systems, Inc.**
**Systems Plus**
**Artsci**
**Chang Laboratories, Inc.**
**Fox and Geller, Inc.**
**Lotus Development Corp.**
**Software Arts, Inc.**
**Sorcim Corp.**
**Microcom, Inc.**
**DB Master Associates**
**CBS Software**
**Sierra On-Line**
**Dow Jones & Company, Inc.**
**Blue Chip Software**
**Brock Software Products, Inc.**
**C.P.U. Inc.**
**Desktop Software Corp.**
**Digital Research Inc.**
**Execuware**
**Haba Systems, Inc.**
**Human Edge Software Corp.**
**Penguin Software, Inc.**

**What Apple is doing for the developer...**

- Open architecture system for software development
- Comprehensive technical documentation
- Dedicated technical support staff
- Mac College — a Macintosh software development course
- Popular programming languages

**...And what this means for your customer**

- Key productivity software:
  Word processing
  Electronic spreadsheet
  Design and business graphics
  Data communications
  Data-base management
- Consistent user interface throughout most applications
- Ability to cut and paste between applications — even those written by other developers
- Steady flow of new software products to meet your customers' future needs

**One Transportable Box**

Take a moment to think about how many separate components and costly peripheral cards a customer has to purchase to make our competitor's product complete, and how long it takes to set one up. We think you'll quickly appreciate the simplicity of Macintosh.

Macintosh takes up only slightly more space on a desk than a stack of paper. And its light weight makes Macintosh easy to move — across your desk or across town. Macintosh is a powerful system that's ready to go. And everything your customer needs to get started is already included, in one box.

- 10" x 10" footprint
- Weighs less than 20 pounds
- Comes complete in one box:
  *Computer*
  *9-inch, high-resolution, 512 x 342 bit-mapped display*
  *Built-in 400K disk drive*
  *Detached keyboard*
  *Mouse*
  *Built-in clock/calendar*
  *Manuals and "guided tour" disk and cassette*
- Uses pocket-size, durable 3½-inch 400K disks
- Has two built-in AppleBus/serial ports for attaching peripherals; no cards needed
- Has a dedicated external drive and polyphonic audio port.

...and all at an AFFORDABLE price

Apple is complementing the impressive list of third-party software with its own unique productivity software. Each program features the ease of use and visual user interface your customers will come to expect every time they use a Macintosh software application.

## Applications Software

**MacWrite**™ provides flexibility not found in other word-processing programs. Multiple font sizes and styles, proportional spacing, and easily adjustable margins and tabs give that "typeset" look to every document.

- Memo, letter and report oriented word processor
- Text and graphics integration
- Multiple font sizes, types, and styles
- Flexible formatting with headers, footers, and justification features

**MacPaint**™ gives you command over Macintosh's extraordinary graphics, for drawing anything from charts to art. Sketch, draw, and illustrate what words can't express. Create maps, graphs, letterheads, overheads, and announcements.

Using the Apple Imagewriter printer, MacPaint will print exactly what you see on the screen. And you can paste your drawings directly into any MacWrite document.

- Powerful presentation and design graphics
- Palettes of different shapes, forms, and patterns
- Single-pixel (point by point) editing capability
- Numerous font sizes, types, and styles

**MacTerminal**™ is a powerful communications package that is as easy to use as any of the other Macintosh personal productivity software applications. Used with the Apple Modem, the user can access the world at the click of a mouse.

- VT100,™ VT52,™ and TTY emulator
- 3270 emulation via the AppleLine coax adaptor unit
- Error-checking file transfer with 9600 baud capability
- Ability to cut and paste into other personal productivity applications

**MacProject**™* lets you plan and revise schedules easily, incorporating costing and time-increment functions. It saves hours of tedious drawing and helps you gain control over complex projects.

- Project scheduling and costing with multiple activity selection
- Gantt charts displaying resource usage
- Flexible layout of charting and multi-page documents
- Ability to cut and paste data into spreadsheet applications

**MacDraw,**™* developed from the popular LisaDraw graphics package, is an object-oriented graphics editor that is ideal for business presentation graphics. As in MacPaint, graphics can be cut and pasted into text documents.

- Full-page and multi-page layouts with scrolling capabilities
- Multiple font sizes, types, and styles
- Ability to work with multiple documents
- Familiar, easy-to-use palettes.

## Programming Tools and Languages

**Macintosh Pascal**† is a highly interactive, interpretive Pascal that employs Macintosh's user interface to provide the same consistent ease of use found in all applications.

- Interactive symbolic debugger
- Access to Macintosh's built-in graphics routines
- Full IEEE floating point arithmetic
- Separate program and output windows

**Macintosh Basic**† is a high-performance BASIC programming language, allows access to Macintosh's user interface and provides ease of use by employing structured statements.

- Expanded feature set over standard BASIC
- Multi-window capabilities
- Simultaneous multiple-program interpreter with single-step debugging capability
- Interactive symbolic debugger

**Macintosh Assembler/Debugger**† is a comprehensive software development tool that gives access to all ROM routines and Macintosh's user interface.

- Assembler development environment
- Complete macro assembler
- Program editor and debugger
- Ability to edit multiple documents concurrently

*available Third Quarter 1984
†available Second Quarter 1984



The most popular accessories at affordable prices. It all adds up to a total Macintosh solution for your customers — and for you. Macintosh systems can be expanded easily with products from Apple's line of high-quality, low-cost peripherals. Built-in ports provide direct accessory connections; *no expensive interface cards are required.*

**Macintosh External Disk Drive** adds extra on-line storage, reduces the need for swapping disks, and makes disk backup easier.

- 400K formatted storage
- Uses pocket-size, 3½-inch, 400K disks
- Macintosh-styled case
- Plugs into dedicated port; no additional card needed

**Apple Imagewriter Printer and Accessory Kit** perfectly reproduces everything on the Macintosh screen.

- Flexibility of printing any mix of graphics and text
- Printing speed of up to 120 cps
- Finished-quality or quick-draft print speeds
- Plugs into dedicated port; no additional card needed

**Macintosh Security Kit** is an easy-to-install system that makes sure Macintosh is there when you need it.

- Built-in security slots on Macintosh and keyboard
- Steel cable loops through system and around leg of desk or table (lock not included)

**Macintosh Numeric Keypad** provides easy entry of numerical data, and is compatible with appropriate Macintosh program applications.

- Four directional cursor-control keys
- Daisy-chain connection from keyboard; no card needed
- Easy-to-install modular jack connection

**Apple Modem and Accessory Kit** links Macintosh with remote computers and electronic information services such as Dow Jones News/Retrieval,® CompuServe,® and The Source.℠

- Auto-dial and auto-answer
- 300-baud and 1200-baud models
- D.C.Hayes® Smart Modem-compatible
- Works with both touch- and rotary-dial telephones

**AppleBus,** available later this year, is a low-cost solution for linking Macintosh to other Apple products in a local environment.

- Connection of up to 16 Apple computers, peripherals, or servers
- Simple and economical design
- Provides connection to other networks
- Appropriate hardware already built into every Macintosh and Lisa

**Macintosh Carrying Case** is a rugged case that takes Macintosh almost anywhere.

- Strong, water-resistant nylon
- Individual pockets to hold all Macintosh components
- Both hand and shoulder carry-straps

# The Advanced Personal Productivity Tool for Knowledge Workers

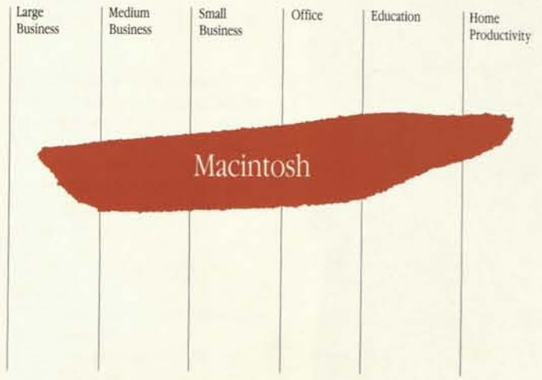
Our research shows there is a tremendous need for an easy-to-use and easy-to-learn productivity tool for a large group of people we call "knowledge workers." Most of us recognize these people by their titles — managers, analysts, planners, consultants, coordinators, supervisors, administrative assistants, and even college students. There are approximately 25 million knowledge workers in the United States and Canada alone, and less than 5 percent of them are currently using a personal computer.

Generally, knowledge workers are people who take information and ideas and process them into plans, reports, analyses, memos, and budgets. Their use of a personal computer will not necessarily be an intense, all-day-long use, since they often bounce from one activity to another throughout the day — from meeting to phone call, from memo to budget, from mail to presentation. Like the telephone, their personal computer must be extremely powerful, yet extremely easy to use.

These are people whose primary responsibilities are to:

— *gather* information (retrieve and organize data)
— *analyze* the data (perform numerical, what-if analyses)
— *summarize* the results of their analyses (write memos, letters, and reports)
— *prepare and present* their conclusions (prepare written proposals, presentation slides, and overheads)

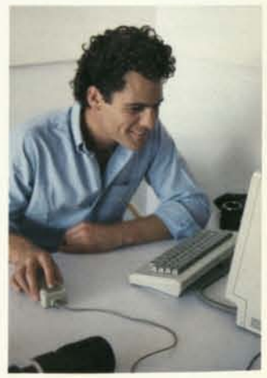
As the chart below indicates, knowledge workers exist in all market segments, as does Macintosh. But is Macintosh for *all* knowledge workers? Such needs as larger storage or memory capacity, color, other operating systems, or unique software applications might be better addressed by other Apple products. Although Macintosh is not for all knowledge workers, the chart shows that Macintosh will impact every market segment because it features the very productivity tools that these people most frequently use.






Financial Consultant
Lawyer
Analyst
Insurance Agent
Stock Broker
College Student
Sales Representative
Publicity Coordinator
Banker
Contractor
Purchasing Agent
Financial Planner
Engineer
Purchase Manager
Real Estate Agent
Graphic Designer
Accountant
Publishing Agent
Nutrition Counselor
Manufacturer's Representative
Advertising Manager
Administrative Assistant
Investor
Small Business Manager
Personnel Manager
Medical Professionals
Technical Writer
Architect
Production Supervisor
Scientist
Technician
Marketing Manager
Research Coordinator
Product Manager
Editor
Writer
Account Executive
Communication Consultants
Traffic Coordinator
Travel Coordinator
Hospital Administrator
System Analyst
Teacher
Dentist
Environmental Consultant
Interior Planner
Audio-Visual Specialist
Cartographer
Journalist
Genealogist
Horticulturist
Athletic Coach
Psychologist
Geologist

*"I've heard a lot about personal computers, and I knew I needed one to become more productive. It's just difficult to get started when there's so much to learn about how to use one. I needed a personal computer that spoke my language."*



The Macintosh solution:
- Less time to get started because of Lisa Technology
- Easy to set up
- Pull-down menus with consistent command structures between applications
- Friendly, helpful documentation

# Macintosh Prospects

It's easy to spot the perfect Macintosh prospects. They're the ones who work at a desk.

And they're looking for a new kind of personal productivity tool. One that takes over their deskwork — not their desk. And one that fits into their workstyle. These are the people who could use a Macintosh.

*"Being a successful consultant is a 24-hour-a-day job. I didn't want to spend the 20-40 hours it used to take to learn how to use a computer. On top of that, every new application meant additional time and confusion. I needed to be a lot more productive in my work without engaging in a complicated and time-consuming process."*

The Macintosh solution:
- Easily productive in a short amount of time
- Mouse-controlled functions eliminate the need for confusing keyboard commands
- Common operations throughout all applications with consistent pull-down menus
- Increased productivity through the use of personal productivity software tools

*"I'm working on my thesis, so I'm constantly running between my lab, my classrooms, and the library. I'd lug all my notes home to where my typewriter is — and my file cabinets and drawing supplies. I always wished I could carry my desk with me!"*

The Macintosh solution:
- Easy to carry (weighs less than 20 pounds; 10" x 10" footprint)
- Complete system in one unit
- Convenient, soft carrying case available
- 400K of built-in disk storage

*"It used to take days for my reports to be designed, typed, laid out, and corrected before they were ready, even for our own department's internal use. I needed a way to increase our office productivity quickly and easily, but without a major investment."*

The Macintosh solution:
- Cut and paste charts and graphs into text
- Detailed graphics and text presentations
- Use a variety of font types, styles, and sizes
- Productivity solutions at an affordable price

*"I make the decisions for my own business. I can't afford to make risky investments. I had to be sure the personal computer I bought could do what I need — now and in the future. It had to be dependable, and backed up with good support in case I needed any help."*

The Macintosh solution:
- Quickly becoming the new industry standard
- Top-quality software and high-quality/low-cost accessories
- Low-cost AppleCare℠ Carry-In Service Program
- 3400 authorized Apple dealers worldwide

# Know How to Respond to Questions Your Customers May Ask

As customers gain greater awareness of Macintosh, they'll ask more and more questions. There'll be various "How does it do that?" or "Can it do this?" questions. Here are some of the questions you can anticipate, with suggested responses:

**Expandable?**

Macintosh comes complete, without the need for expansion slots or expensive cards. The video display and disk drive are built in. There are two high-speed AppleBus/serial ports to attach peripherals such as modems and printers, or to use as a link to other computers; a dedicated port to add a second drive; and an audio port for sound output. All of this eliminates the need for costly expansion cards. And the flexibility of Macintosh's operating system allows developers to expand Macintosh's capabilities.

**Limited Memory?**

Macintosh has a standard 192K, and it uses this memory in a much more efficient way than other systems. For example, a substantial portion of the operating system and key routines are packed into 64K of ROM. This leaves 128K of RAM free to handle the programs and data, giving increased speed and flexibility.

And should your customers require additional memory in the future, Macintosh is designed so it can be upgraded to 512K RAM at a reasonable price once 256K memory chips become commercially available in large quantities.

**Limited Software?**

Apple is strongly committed to providing an abundance of software for Macintosh from third-party developers. Months prior to the introduction of Macintosh, over 100 leading software developers began creating personal productivity software designed to take advantage of Macintosh's power and flexibility. And that's just the beginning. Never before has the introduction of a personal computer received this kind of commitment.

**Communications Capability?**

By using MacTerminal with either of the Apple modems, your customers can emulate the popular VT100, VT52, and TTY terminals. And, by using MacTerminal with the AppleLine coax adaptor unit, your customers can communicate with IBM® mainframes by emulating a 3278 terminal.

**Product Family Compatibility?**

Is Macintosh compatible with other Apple computers? Yes. Macintosh is part of Apple's 32-bit product family, which began with the introduction of Lisa. Most Macintosh software will run on Lisa directly from 3½-inch Macintosh disks.



# The Apple Product Family and Your Buyers

Your customers who are looking for ways to be more productive can have the Apple of their choice. But how do you recognize which Apple best fits each of your customers?

Here's a table that can help you. It presents the relative strengths of each Apple system and, for each Apple system, a typical qualifying statement from a prospective buyer.

| Apple System | Strengths Relative to Other Apple Systems | Typical Qualifying Statement by a Prospective Buyer |
|---|---|---|
| Apple *IIe* | • An industry standard<br>• Most software<br>• Lowest price | "I'm looking for a reliable, proven computer that gives me lots of software choices, no matter how unique my needs are. And it has to fit my budget." |
| Apple *III* | • Specialized business and productivity software<br>• Large-capacity memory and hard disk | "I'm looking for a computer that can handle my large accounting needs, and other applications that are common to my special type of business." |
| Macintosh | • Lisa Technology<br>• 32-bit architecture<br>• Strong third-party software support<br>• Transportable | "I'm looking for a computer that is powerful and will fit into my workstyle. It should be easy to learn and use, with software and support from leading third-party developers, and at an affordable price. I want to take it where my work takes me, and set it up fast." |
| Lisa | • Lisa Technology<br>• Largest capacity of any Apple computer<br>• Multi-tasking capability | "I work with many different types of documents simultaneously. I need a computer that gives me this flexibility, but is easy to use. It has to have the power and storage capacity to work with large reports containing detailed analyses and graphical presentations." |

# Successful Sales Begin With You, Your Customer, And Macintosh

## Preparing You For A Macintosh Success

### Training

Apple has created a comprehensive one-day sales workshop that will show you not only how to use a Macintosh computer, but also how best to demonstrate and sell it. From hands-on to closing the sale, the Macintosh Sales Workshop is designed to help you share in the success of Macintosh.

### Own-A-Mac

Those who sell Macintosh should own a Macintosh. Apple knows that you're the most important part of the Macintosh team, and we want to make you a Macintosh expert. So here's your opportunity to buy a Macintosh system at an incredibly low price. Upon completion of the Macintosh Sales Workshop, you'll be eligible to participate in the Own-A-Mac program. You can even apply for the Apple Credit Card* to help you with your purchase!

You will find additional information on the Own-A-Mac program in the back pocket of this guide, or ask your Apple Sales Representative.

*Available in U.S. only.

### Demonstration Aids

To make sure you can get the most out of your demos, Apple has developed helpful tools and sample demonstrations. By preparing yourself with these tools, you'll find that demonstrating solutions has never been easier.

### "Selling Macintosh" Videotape

Designed especially for you, this informative videotape shows you sales situations and gives you valuable information about Macintosh. "Selling Macintosh" reinforces what you learned in the Macintosh Sales Workshop, and is a great refresher when you want to brush up on your sales techniques.



## Apple Is Bringing the Customer to You

### TV and Print Advertising

The introduction of Macintosh will be accompanied by the strongest advertising campaign in Apple's history. Top quality television commercials will be shown during major sports broadcasts, network newscasts, prime time entertainment shows, and the Winter and Summer Olympics. In addition to advertising in local and national newspapers, attractive multipage inserts will appear in major business and news magazines. And all this advertising is focused on getting customers into your dealership.

### Feature Articles

Many of the prominent computer and business magazines will be featuring Macintosh in articles that are sure to capture the public's interest. These articles will include in-depth product analyses, the history behind Macintosh, and interviews with those people who are making Macintosh the next industry standard.

### Special Publications

In addition to the various books that are currently being written about Macintosh, a new computer magazine, *Macworld*, will be introduced with the product. Published by the producers of *PC WORLD*, this magazine will keep you and your customers up to date on the latest developments and products for Macintosh. At introduction, all Macintosh buyers will be offered two free issues.

You will find additional information on Macintosh's advertising and promotion in the back pocket of this guide.

## Your Keys To Successful Sales

### Apple DemoStation

Turning customers into Macintosh owners starts with the Apple DemoStation, a high-impact display featuring a Macintosh system surrounded by illuminated, eye-catching graphics.

Included with the DemoStation is an interactive program that turns your display Macintosh into an electronic sales brochure. When new customers walk into your store, they can quickly get an overview of what Macintosh is, how it's different, and what kinds of applications they might use Macintosh for. And they'll get a chance to play with Macintosh themselves.

### Consumer Literature

The Macintosh product brochure is a high-quality booklet describing the key features and benefits of Macintosh. It's perfect for use on sales calls and to give to serious prospects who are still looking for additional information. The Macintosh take-one flyer is ideal for summarizing Macintosh's strongest features to interested prospects, and for direct mail campaigns.

### Apple Credit Card*

The Apple Credit Card has become one of the most successful consumer finance programs in the industry. Great as a closing tool, the Apple Credit Card is ideal for those customers who realize the benefits of low monthly payments. By simply completing an application, your customers can often receive credit approval in less than 20 minutes.

### "Macintosh Story" Videotape

A 15-minute, colorful presentation of Macintosh, the "Macintosh Story" is an exciting videotape describing why we built Macintosh and how we did it. You'll be amazed at the many ways you can use this videotape: sales presentations, seminars, training classes, trade shows, and more.

*Available in U.S. only.


### Service and Support

Apple is continuing its tradition of providing the best in service for its products. Macintosh will be backed with the same excellent service and support you've come to expect from Apple products.

Servicing Macintosh is almost as easy as setting it up. Since Macintosh features a modular design, most repairs can be handled quickly in your dealership. And to ensure the satisfaction of your customers, you'll want to be sure to include the low-cost AppleCare Carry-In Service Plan in every sale.

### Promotional/Merchandising Items

Apple is providing plenty of ways for your dealership to announce Macintosh to your customers. Colorful, eye-catching posters and a banner will be supported with a counter card. There are even Macintosh T-shirts.

# The 4 Top Selling Points for Macintosh

Since Macintosh is the third major industry standard, it's only natural to compare it to the second standard, the IBM PC.

In discussing Macintosh with your customers, if you don't remember anything else about Macintosh, you can use these four points that set the standard:

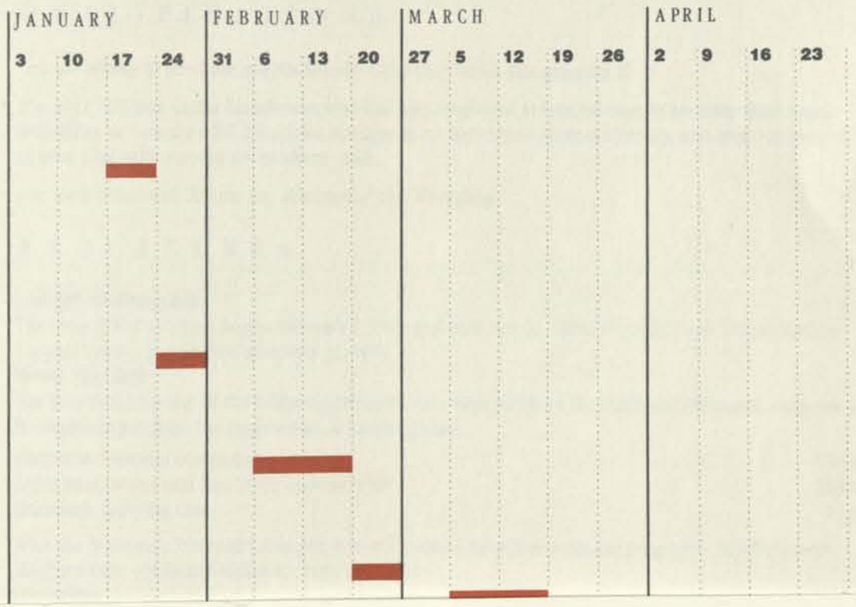
| Macintosh Selling Point | Apple<br>**Our Benefits** | IBM<br>**How They Compare** |
|---|---|---|
| |  |  |
| 1. Lisa Technology | Easy to learn and easy to use, with *consistent* pull-down menus, a mouse for pointing to and selecting options, and cut-and-paste integration among different applications. | With the IBM PC, attempts to re-create Lisa Technology through software/hardware combinations, using such products as Visi On,™ require your customers to make an investment equal to the cost of two or three Macintosh systems. |
| 2. 32-Bit Architecture | Provides the "computer power" necessary to get Lisa Technology benefits. Only 32-bit architecture offers the performance, speed, and high-resolution graphics that Lisa Technology requires. | A 16-bit processor with an 8-bit bus does not provide enough computing power and speed to support the fast, high-resolution graphics that are central to Lisa Technology. |
| 3. Superior Software | The leading software developers have and are creating personal productivity applications — making Macintosh the new industry standard. And best of all, software from different developers will feature the same consistent user interface, with cut and paste integration between applications. | The IBM PC and the software written for it offer no common user interface and no cut-and-paste integration among software products from different software developers. |
| 4. All In One Box | Macintosh comes COMPLETE, in one small, transportable unit. It's easy to fit onto your desk and into your life. You simply take it out of its box, plug it in, and use it; there's no maze of cords and hookup wires to contend with. | The IBM PC by itself is not a complete system. It requires a number of add-on components to make it functional. It takes up three times as much space on your desk as Macintosh. Then there's the task of connecting all the components each time you move it. |

# Introduction Media Schedule.

January 19–April 31

Note:
Dates and media are subject to change without notice.
Magazine dates shown are cover dates. Magazines may be distributed earlier.
Specific computer magazine insertion dates to be determined.

Macintosh™




**Tease**
Wall Street Journal
(January 19)
1 Page

**Introduction**
Wall Street Journal
(January 25)
3 Pages

**Winter Olympics TV**
(February 6–19)
Network 30's

**20-Page Magazine Insert**
Time (February 20)
Fortune (March 5)
Forbes (March 12)
Business Week (March 12)
Newsweek (March 19)
Inc. (March)

**Computer Magazines**
A +
Macworld
Byte
InCider
Info-World
Computer E
Creative C
Personal
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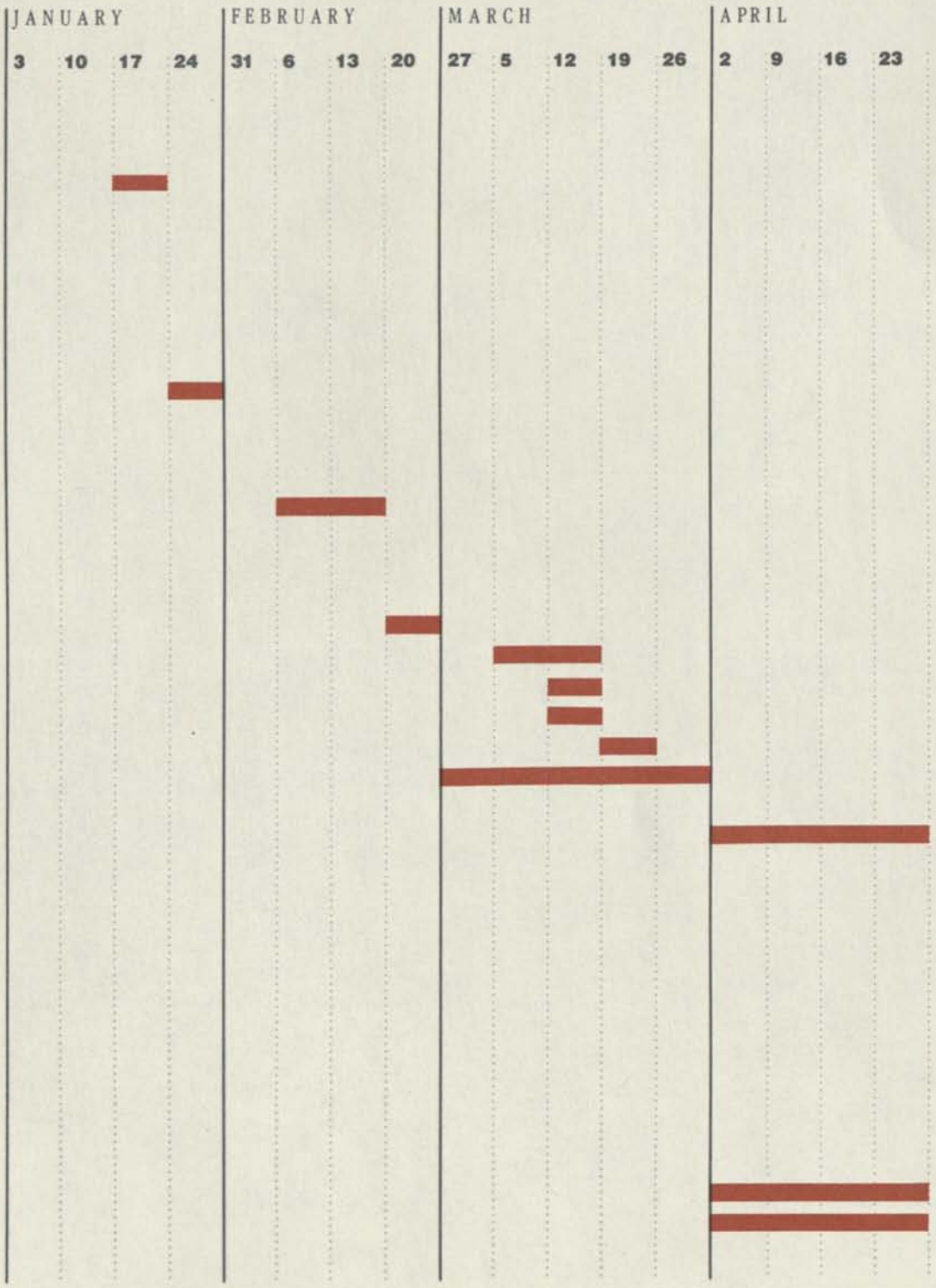


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Computer Magazines
A +
Macworld
Byte
InCider
Info-World
Computer Electronics
Creative Computing
Personal Software
Personal Computing

Sustaining
Network/TV/Print
Regional Co-op (TBD)

# Here's How to Own-A-Mac.

While some companies have been working to make their first personal computer, we've been working to make a better one. Macintosh is Apple's newest computer, with advanced 32-bit Lisa Technology at a terrific price. We know that once you use a Macintosh, you'll be its biggest fan—it's that great! That's why we're offering you a special program—the opportunity to *buy a Macintosh computer for only $750.00! And Apple's amazing new Imagewriter printer for only $249.00.* For transportability, the Macintosh Carrying Case for only $55. To start you off right, you'll receive *three free software applications* with Macintosh: MacWrite and MacPaint from Apple and Multiplan™ from Microsoft. As an added bonus, you'll receive a quarterly newsletter for one year with valuable software and hardware coupons, and the latest Macintosh news. We're glad you're part of the Macintosh Team!

Macintosh™

## QUALIFICATIONS

You are eligible to purchase one Macintosh under the Own-A-Mac program if:

- you are a full-time Dealer Salesperson who has been employed at least 60 days in an authorized Apple dealership, or you are a full-time Sales Manager in an authorized Apple dealership, and spend at least 50% of your time *selling* computer products; and
- you have completed the one-day Macintosh Sales Workshop.

## PROCEDURES

**Length of Program**

The Own-A-Mac program begins February 1, 1984 and ends May 31, 1984. No orders will be accepted by Support Centers postmarked after May 31, 1984.

**What You Get**

You may purchase any of the following products. You must purchase the Macintosh Personal Computer to be eligible to purchase the Imagewriter or Carrying Case.

| | |
|---|---|
| Macintosh Personal Computer* | 750.00 |
| Apple Imagewriter and Macintosh Accessory Kit | 249.00 |
| Macintosh Carrying Case | 55.00 |

*With the Macintosh Personal Computer, you will receive *three free software programs:* MacWrite and MacPaint from Apple and Multiplan from Microsoft.

**Ordering**

Own-A-Mac Order Forms and Apple Credit Plan Applications will be available through your Apple Sales Representative after you have completed the Macintosh Sales Workshop. You may only submit one Order Form during the life of the program. You must fill in the Order Form *completely,* have it signed by your Dealer Principal, and send it to your Apple Sales Representative in the envelope provided.

**Cash Payment**

You may pay for your Macintosh products with a certified check, cashier's check or money order payable to "Apple Computer, Inc." Your check should be attached to the Order Form. NO PERSONAL CHECKS will be accepted.

**Credit Payment** (Available in U.S. only)

You may apply for 100% financing under the Apple Credit Plan. There is *no downpayment* required. If you have an Apple Credit Card, write your credit card account number in the shaded space provided at the bottom of the Order Form. Send the Order Form with your credit card account number to your Apple Sales Representative. If you do *not* have an Apple Credit Card, fill out the Apple Credit Plan Application completely. Then, attach it to your Order Form and send them together to your Apple Sales Representative. All credit applicants under this program will be subject to the same credit qualifications as any applicant and all applicable state laws on credit limitations.

**Delivery**

Your Macintosh products will be delivered to the address *you* indicate on the Order Form. Units will be delivered on a *first come, first serve basis.* You will be notified in writing of the approximate delivery date of your Macintosh products.

**Receipt**

The packing slip you receive with your delivery will be your sales receipt.

**Not for Resale**

Macintosh products purchased under the Own-A-Mac program are not for resale for a minimum of one year.

# Macintosh Questions and Answers

As the Macintosh personal computer is introduced into the marketplace, it is assumed that there will be many questions concerning this new and exciting product. The following information reference has been prepared in a question and answer format to better help you understand the product and answer some of those questions that will arise. It has also been divided into different categories to help you locate specific points of question. Remember that some of this information will change and be updated in the future.

## PROCESSOR

**Why did Apple choose the Motorola 68000 chip as the Macintosh microprocessor rather than other well known chips such as 8086 or 8088 processors?**

Macintosh is a member of Apple's 32-bit family of personal computers. 16-bit processors such as those mentioned are not powerful enough to provide the speed, integration, and graphics necessary to run Lisa Technology. Additionally, the Motorola 68000 makes Macintosh software compatible with Lisa.

**Where does Macintosh get it's amazing speed?**

First, Macintosh uses the 68000 microprocessor running at 8Mhz, along with 64K of ROM. This provides the power and speed needed to run Lisa Technology efficiently. Second, both the Macintosh hardware and software concepts were designed together so they work well together, taking FULL advantage of the system. Because of all that, what you see is extraordinary performance from a personal computer!

## STORAGE

**Why was the 3 1/2-inch drive selected for Macintosh?**

The small disks have a number of benefits. First, these disks represent both state-of-the-art design and the future direction of disk technology. Second, these single-sided disks can hold up to 400K of data which offer a high degree of reliability. Finally, the disks are not only encased in hard plastic, making them extremely durable, but they are small in size. They will even fit in a shirt pocket!

**Can standard Sony 3 1/2-inch disks be used on Macintosh?**

Yes. While Apple is a conveinient source for these disks, other companies do provide standard Sony 3 1/2-inch disks that can be used on Macintosh.

**Does Macintosh support the Profile or other mass storage devices?**

Yes, it is possible to attach a hard disk to Macintosh through one of the AppleBus/serial ports. Apple Computer currently does not offer a hard disk drive for Macintosh. However, in keeping with the open architecture structure of Macintosh hardware and software, several third-party developers have been working on such a solution, and we may see such a product announced by Spring, 1984.

## SCREEN

**What is a bit-mapped screen?**

Bit-mapping means that every dot on the screen has a bit in memory. This provides Macintosh with its incredible graphics performance as it "maps" and manipulates each of the more than 175,000 pixels on the screen. For example, when you move a document icon or window to another location on the screen, it is "mapped" at its new location. Such resolution and detailed graphics establish a new standard of excellence in computer performance.

**Why was a 9-inch screen chosen as part of the system?**

In order to maintain the compact size, affordability, and transportability of the Macintosh system, a 9-inch screen was selected. Due to the high-resolution and crisp appearance of the screen, as well as the flexiblity of graphics and varieties of text sizes, the readability of the Macintosh compares favorably with much larger screens. Through the use of sizeable windows and scroll bars, large documents can be made visible without the higher cost of a larger screen.

**Will Macintosh have a color screen in the future?**

Our design goal is to provide high-resolution bit-mapped graphics in an affordable system. The incorporation of a high-quality color display would have increased the cost of Macintosh to more than twice the current price. And it would be even more expensive to produce a color monitor that displays black & white images well.

However, since Macintosh's built-in graphics will support color output, and Macintosh has an open architecture, we would expect to see the availablity of color output devices (such as color plotters and printers) in the future.

## KEYBOARD

**Can four direction cursor control keys be used with Macintosh?**

Yes. The numeric keypad has four field motion (direction) cursor keys which can be used in conjunction with the appropriate software that recognizes these keys. However, most programs don't require them because the mouse provides much more flexibility and ease of use than cursor control keys.

**Why was a 10-key pad not included on the keyboard?**

Not every user will need a 10-key pad. Therefore, no additional deskspace is taken up (or additional expense). Additionally, many users wish to place the keypad in a postion where it is most comfortable for numeric entry.

**Are there any other characters available for text entry besides the standard alphabet that appears on the keyboard?**

Yes. Because of the versatility of Macintosh and the sophisticated software in ROM, many unique symbols are available to the user directly from any keyboard. These include foreign language characters and scientific symbols, as well as special text notations such as TM, R, P, etc. These can be made visible on the screen by the use of the "Key Caps" Desk Accessory. In addition, the keys can be "re-mapped" for any application.

## MOUSE

**Is there any advantage to Macintosh's one-button mouse?**

A considerable amount of the research and development of Lisa Technology centered on developing a user interface that was as simple as possible. Much of this research involved the design of the mouse. It had to emulate the way people work, such as pointing and selecting. With the one-button mouse there is no need to remember which buttons to push in which instance. Other mouse interfaces can require, for example, that the user learn to push one button at the start of a task, and another at the completion. Having two or more buttons on the mouse forces you to think "which one" every time you use it.

**Am I limited to the type of surface I can use the mouse on?**

No. Unlike many other types of mouse devices, the Macintosh mouse (as with all other Apple mouse devices) can be used on any hard surface. This achievment is due to the research and testing as one of the original mouse design goals. The use of a rubber ball also adds to its reliability.

**How long will the mouse last?**

Under normal conditions, the mouse can "travel" literally hundreds of miles before it will require any maintenance. Should it require attention, normally all that's needed is a cleaning of the rubber ball.

## MEMORY

**Why does Macintosh have 64K of ROM?**

The 64K ROM contains most of the key operating routines of Lisa Technology. This has four major benefits; 1) It allows each software program to have less operating overhead by retrieving less of the operating system from disk. And the code in ROM executes 25% faster than code in RAM, which means faster loading of programs. 2) There are less operating routines in RAM allowing for more memory space for data. The ROM also houses the built-in diagnostics. 3) The ROM houses the built-in Lisa Technology for consistent interface between applications. 4) All of this makes application development much easier.

**What specific advantages does the Macintosh ROM memory provide to programmers?**

The ROM memory is developed in a way that makes it much easier for programming of applications, and ensures a level of consistency with the software applications developed. Macintosh has over 460 entry points into ROM. These entry points are used by software developers to let their applications take advantage of the benefits of Lisa Technology, such as windows, pull-down menus, cut & paste integration, etc. And with many of the key operating routines residing in ROM, developers don't have to rewrite many of the routines, making it easier and faster to get software up and running because of that decreased development time.

**Why does Macintosh only have 128K RAM?**

It isn't fair to compare strictly on the amount of RAM. Macintosh's 64K ROM contributes significantly to the capabilities of the system, making its total memory 192K by comparison.

With Macintosh, the ROM memory is completely hand-coded, containing much of the information and user interface that is normally located in RAM memory on other personal computers. This allows more space in RAM memory for the application and files. Current applications have been optimized to run on Macintosh's 192K memory.

**Will Macintosh be able to accomodate RAM memory upgrades in the future?**

Yes. The Macintosh digital board has been designed to accept 256K chips as soon as these chips become commercially available in large quantities and at a reasonable cost. This upgrade to 512K RAM will be available through dealer service, most likely by late 1984. The cost to the customer of such an upgrade has not been determined.

## PRINTING

**Does Macintosh support the daisy wheel printer? What about a plotter, color printers, etc.?**

The Apple Imagewriter printer generates images at resolutions up to 160 x 144 dots per inch through unique Macintosh printing software. The print quality is approximately 3 times better than on conventional printers, and easily rivals print quality on printers costing more than four times as much. In addition, the Imagewriter prints both text and graphics with equal speed and ease. The Macintosh design goal of "what you see on the screen is what you get on the paper" can be achieved in a very cost effective way by the use of the Imagewriter.

For those users who are preparing documents where "letter-quality", color, or other types of output are the highest priority, the Macintosh printing software was written to accept print drivers that allow the user to install other printers easily. We expect to see a number of printer drivers and output devices introduced by third-party developers in the future.

## BACK PANEL OF MAC

**What are AppleBus/serial ports?**

The two AppleBus/serial ports (RS232-C\RS422) located on the back of Macintosh are high-speed serial ports that provide a direct connection for products like the Imagewriter printer or the Apple Modem. They also serve as the connection to AppleBus, Apple's solution to local networking environments. In fact, the hardware necessary for connection to AppleBus, is already built into every Macintosh and Lisa.

RS232-C/RS422 refers to both ports. RS232-C means that the ports can be used either as a standard serial connection or an RS422 connection for AppleBus, providing high-speed data transfer and interconnect to networked devices.

**Why are there no parallel ports on Macintosh?**

The trend in peripherals is towards much more intelligent devices which connect over serial links. Therefore, Macintosh has the two high-performance serial ports. However, it should be possible for a third-party developer to build a low-cost Applebus peripheral that will allow the use of parallel devices.

**Explain the polyphonic audio capabilities.**

Some of Macintosh's audio capabilities are already demonstrated in exisiting Macintosh applications. Macintosh is capable of multiple-voice sound. What this means is that in future developments, both from Apple and from other developers, advanced audio features and speech synthesis will become an integral part of Macintosh's features as the hardware is already built into every Macintosh.

In technical terms, Macintosh uses an 8-bit digital-analog converter with 22KHz sampling rate, 4 simultaneous voices with 24-bit pitch resolution, and user defineable waveforms.

**What is the "programmers switch"?**

The programmer's switch allows the user to "reset" or "cold boot" the system without actually turning off the power supply. It provides an added convenience, particularly for programmers who need to perform this task frequently. In addition, it contains a programmer's NMI switch (non-mistake interrupt) which can be used to invoke the debugger.

**Can I plug in other monitors (i.e. Conrac, Electrohome projectors, large screen, etc.)?**

Apple and third party vendors are currently looking into the development of a large screen that can attach to Macintosh. We will provide futher details on this in the future.

## EXPANSION

**Why are there no expansion slots in Macintosh?**

Macintosh comes complete with a built-in display, built-in disk drive, built-in serial ports, and built-in speech and sound hardware. Most peripherals that "complete" other personal computers have already been built into Macintosh.

In addition, Macintosh has dedicated ports for an external drive, mouse, and audio output. Peripherals such as printers and modems plug directly into 2 high-speed AppleBus/serial RS232-C/RS422 ports. Most other personal computers require costly expansion cards to attach these devices, whereas Macintosh does not.

In addition to hardware expansion, we expect most expansion of Macintosh will be done through software applications making extensive use of the ROM routines.

## SOFTWARE

**Are all software packages integrated with each other?**

A discussion of integration of applications on Macintosh involves two things. First, you can currently cut & paste between applications where it makes sense; for example, between MacPaint and MacWrite.

Secondly, much of the software for Macintosh comes from third party developers. By following the standard protocol using the routines in the ROM memory, these developers can create integrated applications that will work with packages from other developers.

**What other software packages can we expect to see from Apple in the near future?**

Please see the listing of Apple software in the Selling Guide. This is a compilation of application programs that are currently scheduled within the next 6 months. While Apple will continue to provide some key productivity software packages, languages, and communications software, the majority of the software will come from third-party developers.

**Are there any developers writing games for Macintosh?**

While Macintosh is not directed at the home computer market, we anticipate that, due to the incredible graphics performance, there will be some outstanding games and entertainment programs developed for Macintosh. The list of developers in the Macintosh Selling Guide includes premier developers of games.

**How does Macintosh compare to other mouse and window products like Windows (c Microsoft) and VisiOn (c VisiCorp)?**

All products that are based upon the use of a mouse and windows seem to have many things in common. Closer inspection shows that there are many differences. The most basic difference is the integration with the personal computer itself. Macintosh was designed from the begining to maximize the capabilities of Lisa Technology. The whole environment of Macintosh is this technology.

- o The user interface is built into the ROM memory providing consistent and familiar commands, and cut & paste integration between applications -- from any developer.

- o Built-in graphics and bit-mapped display technology provide better resolution and a wider variety of crisp, sharp images, both in text and graphics.

- o The 32-bit architecture of Macintosh provides powerful, high-speed performance that is more responsive to the user, without the need to wait long periods of time for the computer to perform a command.

- o Macintosh provides these advantages at a price that is often less than half the cost of a personal computer configured with the power, memory, storage, necessary to accomodate these "window-oriented" software packages.

**Is it possible to "write protect" a Macintosh disk?**

While making backup copies of important information is always a good idea, disks can be protected by using the plastic protect tab on the disk.

**The "Guided Tour" of Macintosh is great. How is it done? Is there a way I can create my own program to do this type of thing for training and seminars?**

The method of capturing actions on the screen for playback is called Journalling. Apple is currently looking into the possibility of making this as a separate software package to be available sometime in the future.

**What is the Finder?**

The Finder is the software application that lets the user manage files in the system and on disks. It is the Finder that allows you to store documents inside of folders, cut and paste information from one file to another, and other "housekeeping" functions such as copying files.

**What is the advantage of the Finder over conventional file management systems?**

The Finder eliminates the need for complex or cryptic commands and pathnames when storing or retrieving information. Icons appear as documents, folders, or disks with titles appearing next to them. To access a document, you need only to select the appropriate icon and open it. And when a document is saved, it reverts back to an icon and is stored in its original location. Therefore, users are able to organize files any way they choose.

**What are Desk Accessories?**

Desk Accessories are functional tools (clock, calculator, notepad, etc.) that are "mini-applications" that run concurrently with any application program. Desk Accesories are "open-ended" which means Apple and third-party developers can offer additional ones in the future.

**What is the Clock?**

The Clock is a desktop accessory included in the Finder that upon demand, can display the time and date. (Macintosh will also time-stamp files.) A built-in battery allows the Clock/Calendar to remain set even when the system is unplugged. The battery lasts for approximately up to one year.

**Why is a Calculator included in the Desk Accessories?**

The Calculator is similar to the hand held calculator you frequently use. Many times while working on a particular file, users will need to make a quick computation. The Calculator can by instantly accessed for this purpose. And the results can be cut & pasted into the application.

**What are the Notepad, Clipboard, and Scrapbook. What is the difference between them?**

The Notepad is an 8-page scratch pad that permits the user to enter text from the keyboard, or cut and paste to or from a document. Think of it as a note pad on your desk. It is ideal for making notes to yourself while doing something else. It deals only in text.

The Clipboard, as with Lisa, allows a user to cut or copy information from a document to the Clipboard, and paste it into another document (elsewhere in the same document). Unlike the Scrapbook (see below), it will only handle a single item at a time.

The Scrapbook is a Desk Accessory into which a user can paste many different types of data (either text or graphics) for later inclusion into other documents (through pasting). While the Clipboard is designed to accept only a single item of data (the last data cut or copied), the Scrapbook permits as much information to be included as there is space on the diskette. Once in the Scrapbook, the user can page through it to select what is needed to place into another document. Without the Scrapbook, the user would be required to individually cut & paste each item needed -- one at a time.

**Is Macintosh limited to one window?**

No. Software applications may be written to accomodate multiple windows. The only limitation to the number of windows is memory size. Of course, there is a screen-size limitation in that only a certain number can be individually displayed without having the screen become very cluttered. Windows can be moved or stacked (one over another) as well as displayed side-by-side.

**Explain the difference between MacPaint and MacDraw.**

MacPaint, as it's title might indicate, is a graphics design package that works similar to the way you would use ink on paper. It provides flexibility and versatility in creating virtually anything, with an uncanny ability to focus on detail. Once an image is created on the screen, it paints right over anything that was originally there. (Should you select to move the drawing, a blank space is left in its place.)

MacDraw is a more structured, or "object-oriented" application, and does not have the detail or expressiveness of MacPaint. Like LisaDraw, MacDraw works with the structure (or geometric shape) of each object, so any "selected" object or group of objects can be moved, sent to the back, sent to the front, etc. MacPaint has the ability to move things on the screen, but only as defined by the selection box or lasso.

## COMPATIBILITY

**It is stated in the Macintosh Selling Guide that Macintosh is compatible with Lisa. How does this work?**

Most of the software developed for Macintosh will run on Lisa. Since the new Lisa 2 family uses the same 3 1/2-inch disk drive as Macintosh, by calling on the MacWindow function, Lisa will boot software and bring files directly from the Macintosh disk. (the exisiting install base of Lisas can be upgraded to accomodate these 3 1/2-inch drives.) More information on this will be provided in the near future.

**Is there compatibility with the Apple // or Apple /// families?**

Becuase of the substantial differences in technology and internal architectures, there is no compatibility between Macintosh (a 68000 product) and either the Apple // or Apple /// families (6502 products). However, ASCII file compatibility can be achieved through communications or through the future networking of products and product families.

**Will Macintosh support other operating systems such as MS DOS, Xenix, or CP/M?**

There are no plans to provide other operating systems for Macintosh. The Macintosh operating system has been optimized to take advantage of the Macintosh hardware. Other operating systems are not designed to benefit from Macintosh's capabilities.

**Will there be a Pascal workshop for Macintosh?**

While Macintosh Pascal will permit Pascal development on Macintosh, it is better used as a teaching tool for this development and is not suitable for large programs. However, Lisa's development environment does provide full Pascal development for Macintosh. Apple is investigating other Pascal development systems.

**Will there be other languages available like Fortran or Cobol?**

Apple has no current plans to offer languages for Macintosh other than Pascal, BASIC, Logo, and development tools for 68000 native code. Apple has chosen to encourage third-party developers to provide other languages.

**When will the Macintosh Toolkit be available?**

The Macintosh Toolkit is a series of three-ring binders called Inside Macintosh, that describes the Macintosh ROM routines. It is presently available directly from Apple Computer. Developers should contact the Developers Relations Group for further information. By summer, however, the Toolkit will also be available at retail locations. More information will be available in the near future.

## COMMUNICATIONS

**What data communications are available for Macintosh?**

With the use of MacTerminal and the Apple Modem, Macintosh can communicate with electronic information services, other personal computers, and mainframes through TTY, VT100, and VT52 emulation. 3270 communications to IBM mainframes is also available the AppleLine coax adaptor unit.

**Can I cut & paste information to/from MacTerminal?**

Yes. MacTerminal takes advantage of both the windows and cut & paste capabilities. Text can be cut & pasted between MacTerminal and other applications.

**What is AppleLine?**

AppleLine is Apple's new 3270 coax adaptor unit. Macintosh users who require 3270 terminal emulation to IBM mainframes can use AppleLine to connect a Mac directly to their IBM 3271/74 controller.

companies do provide standard Sony 3 1/2-inch disks that can be used on Macintosh.

**Will Macintosh work with the Apple Cluster Controller?**

Yes, Macintosh can communicate in a 3270 environment using the Apple Cluster Controller. Macintosh will attach to the Apple Cluster Controller through the use of a standard DB-9 to DB-25 interface cable. To specify "terminal type" to the Apple Cluster Controller, simply select the "LisaTerminal" entry.

**What is the difference between the AppleLine coax adaptor unit and the Apple Cluster Controller?**

The Apple Cluster Controller is used in a remote type operation where the user is not located within the cable range of the mainframe. The AppleLine is used when the user is co-located with the IBM data communications equipment or when the user already has IBM controllers at his/her location.

**Why did Apple choose not to release AppleNet? Will there be a network available for Macintosh?**

Apple reviewed the current status of the network market and the current vendors and concluded that many of our customers were waiting for the "standard" to emerge. Without favoring one technology or another, we felt it was important to provide connection of our own devices in the short term and not "lock" oursleves into one interconnect strategy or another when a standard has yet to be established. AppleBus provides a much more neutral strategy that gives Apple the flexibility to select which gateways are required as the standards emerge.

**What is AppleBus?**

AppleBus is a very local peripheral sharing network. It utilizes hardware actually built into all Apple 32-bit products for network connection, thereby lowering the cost of the network. For the Apple //e, existing low cost (SchoolBus) network hardware can be used. The network can consist of up to sixteen nodes which can be personal computers, printer, communication, or file service devices, spread over a distance of 1000 feet.

**When will AppleBus be available?**

The introduction of AppleBus is in two parts. First, the specifics relating to protocols and software are currently available from Apple. This allows third-party developers to begin creating products to take advantage of AppleBus. AppleBus related hardware (such as cables, print servers, necessary software, etc.) will be announced in late 1984.

Yes. While Apple is a conveinient source for these disks, other companies do provide standard Sony 3 1/2-inch disks that can be used on Macintosh.

## Who will use AppleBus?

Typically, the user of a small office or local department type application who wants to interconnect one of the Apple 32-bit family products or connect their Apple //'s will be the primary user of AppleBus. The product offers a great deal of flexibility to the user (file services, printing, communications to the corporate installation) while providing a very low-cost data highway.

## How much will AppleBus cost?

Since AppleBus hardware is already built into both Macintosh and Lisa, the hardware cost for the Apple 32-bit family is included in the products. For the Apple //e, the cost will be that of the SchoolBus interface card. The only other hardware cost for AppleBus is the cost of the cable and a small, inexpensive interface device. Software for all products will be an additional cost which will be announced at a later date.

# The 4 Top Selling Points for Macintosh

Since Macintosh is the third major industry standard, it's only natural to compare it to the second standard, the IBM PC.

In discussing Macintosh with your customers, if you don't remember anything else about Macintosh, you can use these four points that set the standard:

| **Macintosh Selling Point** | Apple<br>**Our Benefits** | IBM<br>**How They Compare** |
|---|---|---|
| |  |  |
| 1. Lisa Technology | Easy to learn and easy to use, with *consistent* pull-down menus, a mouse for pointing to and selecting options, and cut-and-paste integration among different applications. | With the IBM PC, attempts to re-create Lisa Technology through software/hardware combinations, using such products as Visi On,™ require your customers to make an investment equal to the cost of two or three Macintosh systems. |
| 2. 32-Bit Architecture | Provides the "computer power" necessary to get Lisa Technology benefits. Only 32-bit architecture offers the performance, speed, and high-resolution graphics that Lisa Technology requires. | A 16-bit processor with an 8-bit bus does not provide enough computing power and speed to support the fast, high-resolution graphics that are central to Lisa Technology. |
| 3. Superior Software | The leading software developers have and are creating personal productivity applications — making Macintosh the new industry standard. And best of all, software from different developers will feature the same consistent user interface, with cut and paste integration between applications. | The IBM PC and the software written for it offer no common user interface and no cut-and-paste integration among software products from different software developers. |
| 4. All In One Box | Macintosh comes COMPLETE, in one small, transportable unit. It's easy to fit onto your desk and into your life. You simply take it out of its box, plug it in, and use it; there's no maze of cords and hookup wires to contend with. | The IBM PC by itself is not a complete system. It requires a number of add-on components to make it functional. It takes up three times as much space on your desk as Macintosh. Then there's the task of connecting all the components each time you move it. |



**Apple Computer, Inc.**
20525 Mariani Avenue, Cupertino, California 95014

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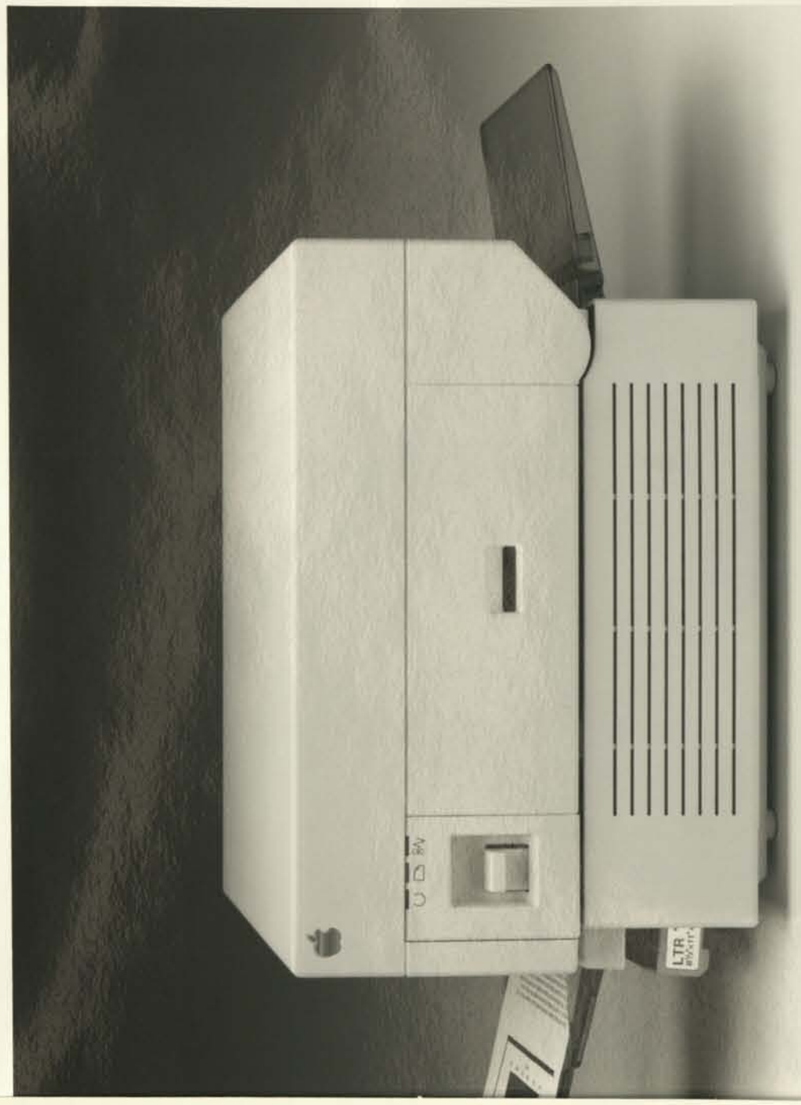
# The Macintosh™ Office



er brings typeset-quality text and art departm
ers, forms and overhead transparencies. Th
isers on the AppleTalk Personal Network or

*Press Information*

**REGIS MCKENNA INC.**
1800 Embarcadero Road
Palo Alto, CA 94303
Katherine Cadigan - Christopher Dorst
(415) 494-2030

Prepared for:

**APPLE COMPUTER, INC.**
20525 Mariani Avenue
Cupertino, CA 95014
Renee Rodrigue (408) 973-2042

*FOR IMMEDIATE RELEASE*

## APPLE ANNOUNCES NEW HIGH-RESOLUTION LASER PRINTER

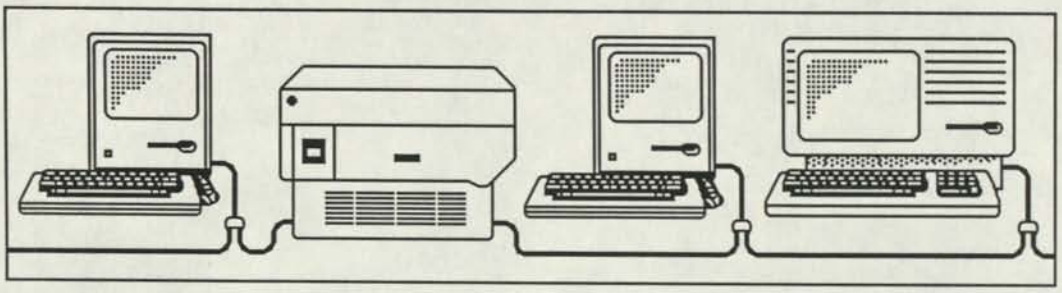
CUPERTINO, Calif., January 23, 1985--Apple Computer, Inc. today announced the LaserWriter high-resolution laser printer. The new product allows business users to produce near typeset-quality text and art department-quality graphics from their personal computer workstations. The LaserWriter--printing such documents as newsletters, overhead transparencies, business forms, memos, brochures and reports--can be shared among a work group of up to 31 people using AppleTalk™, Apple's low-cost personal network.

The printer, which is an integral part of The Macintosh™ Office, provides flexibility

Apple's LaserWriter printer brings typeset-quality text and art department-quality graphics to business workers for producing memos, reports, newsletters, forms and overhead transparencies. The printer, a breakthrough in visual communication, can be shared among many users on the AppleTalk Personal Network or used directly connected via an RS232 port.

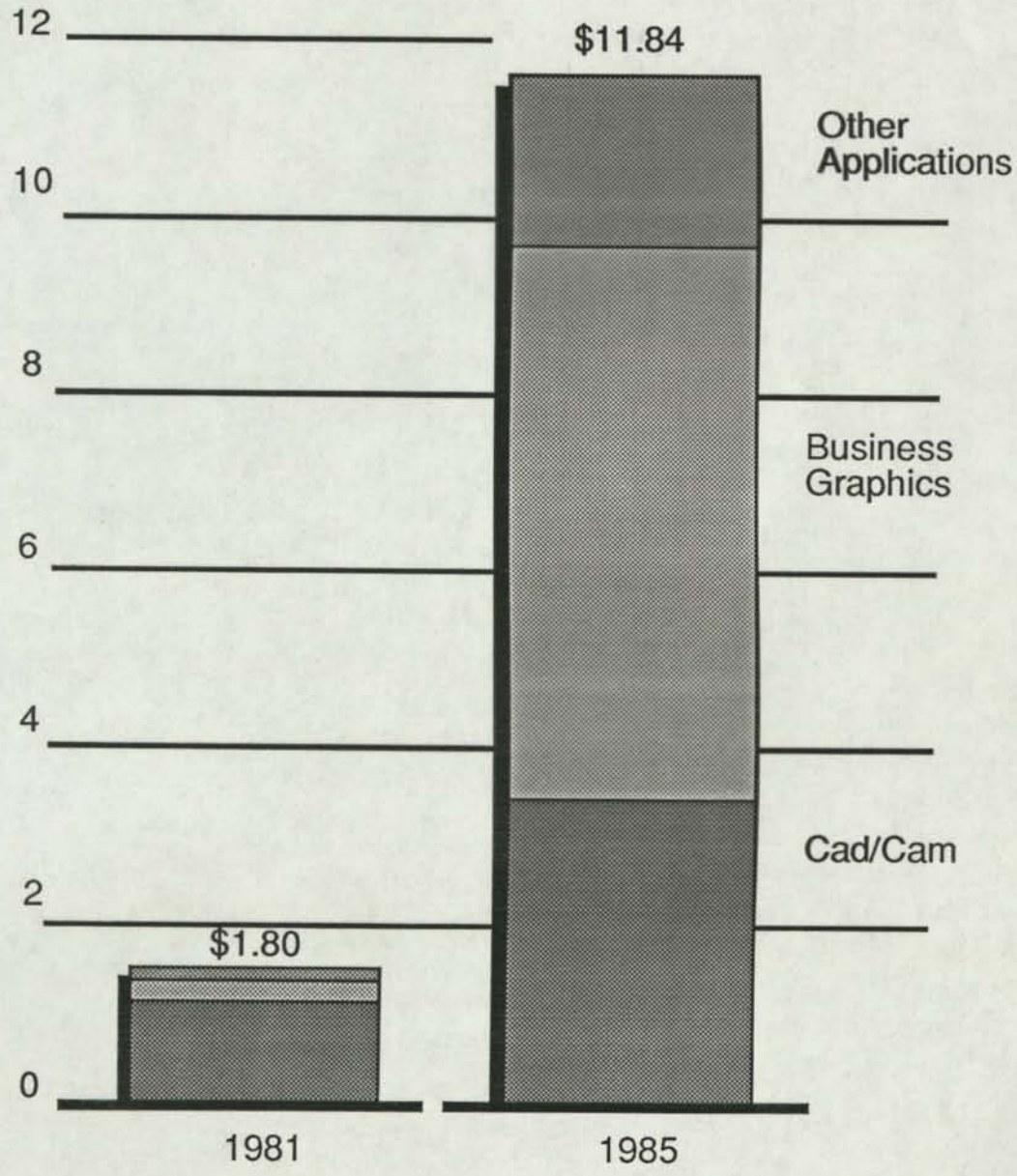
The AppleTalk Personal Network costs $50 for the cable and connector box needed to connect a device to the network and is designed to take only a few minutes to install. AppleTalk, which brings Macintosh power and radical ease of use to work groups, ties together from two to 32 business users.

Apple has announced the AppleTalk Personal Network and the LaserWriter printer, two of the products in The Macintosh Office designed to offer knowledge workers innovative office solutions. The Macintosh Office serves the needs of work groups in offices, allowing them to share information and equipment and produces high-quality printed materials.



These materials were created using
Macintosh applications and were
printed on the LaserWriter.

# The expected explosion of computerized graphics in the office...




* Billions of Dollars

source: The Yankee Group

ArchitecturalDesign | Issue #12 | Winter

# Arch News

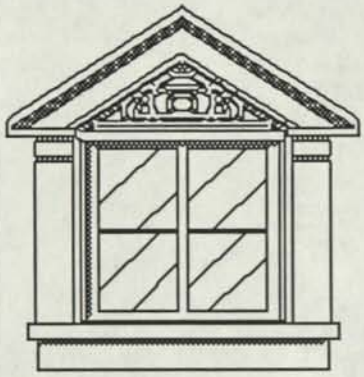
The Society of Architects
1400 New York Avenue
Washington DC 20018

Value is what the 1985 SOA National Seminar in Atlanta is about-- and it's what you'll find in greater quantity and greater quality than ever before at the convention's 1985 SOA Exhibit of New Technology and Products.

The biggest convention exhibit in SOA history will present you with a demanding challenge: Find a way to decide which products, services and technologies you want to learn more about:

- Computer Technology
- Software, Hardware
- Contract Furniture
- Interiors, Exteriors
- Practice Systems

You'll find it all--plus a convention schedule that lets you see it all--at the 1985 SOA Display of New Products and Design.



The Art of the Dormer, a retrospective look at 19th Century dormers. At the Seattle Architectural Gallery through the 19th of the month.

This page was created with Hayden's Da Vinci, Aldus' PageMaker and the Apple LaserWriter.

"Architecture... has its own validity. It needs no reference to any other discipline to make it viable or to justify its value."
--Philip Johnson

Cr. Wren

**Conferences, seminars, workshops:**

**May 21-25** 25th Annual Meeting, The Society of Architects, 1400 New York Avenue, Wash. DC 20006.

**June 10** Deadline, call for 500-word abstracts, "Designing and Managing Commercial Buildings: An Intensive Workshop."

**June 25** American International Solar Conference and Exhibition. Thomas Convention Center, Dallas,TX.

Call (206) 555-1919 for details and register early for the 1985 SOA National Seminar, March 9-12, in Atlanta.

"Architecture aims at eternity; and therefore is the only thing incapable of modes of fashions in its principles."
--Christopher Wren

## *Master Architect*

The man featured in this month's issue may well be one of Vancouver's best kept secrets. You may not know his face, but if you live in Vancouver you know his work - that is, if you've ever visited Simon Fraser University, The Museum of Anthropology, Robson Square/The Law Courts, or any of a number of other governmental, commercial and residential buildings. The man is Arthur Erickson, Architect, and he has called Vancouver home for most of his life.

While the layperson may not recognize his face or name, during a remarkable and prolific career spanning more than 30 years, Arthur Erickson has received dozens of honorary degrees and virtually every major professional and personal award. To list them all would take pages, but they include the Man of the Year award, 1972; the Tau Sigma Gold Medal for excellence in Design,

# Notes to Consolidated Financial Statements

### Summary of Accounting Policies

*Basis of Presentation*

The accompanying consolidated financial statements include the accounts of Apple Computer, Inc. and all of its subsidiaries after elimination of intercompany accounts and transactions.

*Fiscal Year*

Apple's fiscal year ends on the last Friday in September.

*Inventories*

Inventories are valued at the lower of cost or market. Cost is computed using currently adjusted standards which approximate actual cost on a first-in, first-out basis. Market is based upon estimated net realizable value.

*Service Parts*

Service Parts totaling $14,791,000 for 1984 and $14,654,000 for 1983 are included in other assets. Service parts are valued at the lower of cost or market, which approximates actual cost on a first-in, first-out basis. The carrying value of these parts is being amortized on a straight-line basis over 36 months.

*Property, Plant and Equipment*

Property, plant and equipment are stated at cost. Depreciation and amortization are computed principally by use of declining balance methods over the estimated useful lives of the assets.

*Earnings Per Share*

Earnings per share are computed using the weighted average number of common shares and dilutive common equivalent shares outstanding during the period.

### Inventories

Inventories consist of the following:

| *(In thousands)* | 1984 | 1983 |
|---|---|---|
| Raw materials and purchased parts | $ 88,868 | $44,488 |
| Work-in-process (inc. materials held by subcontractors) | 48,550 | 28,069 |
| Finished goods | 127,201 | 69,900 |
| Total | $264,619 | $142,457 |

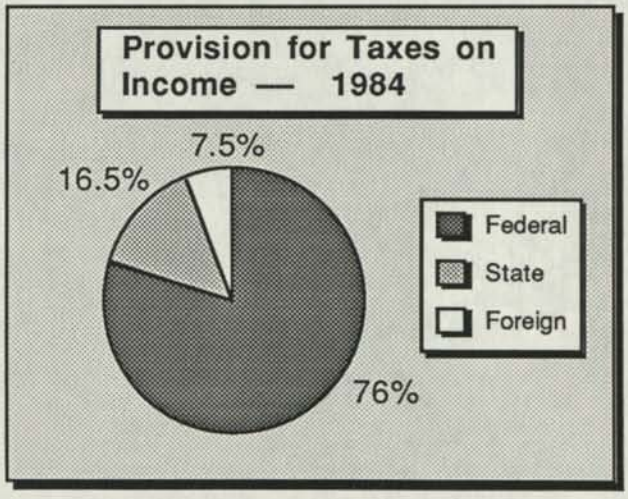
Created using Word, Chart, and Plan, from MicroSoft, MacDraw from Apple and printed on the LaserWriter.

### Borrowing Arrangements

Apple has short-term unsecured credit facilities with domestic and foreign banks totalling $125 million. There is no compensating balance requirments or fees associated with these credit facilities and they are cancellable at any time by either the banks or Apple. There were no borrowings against these credit facilities at September 28, 1984.

### Taxes on Income

The provisions for taxes on income consist of the following:



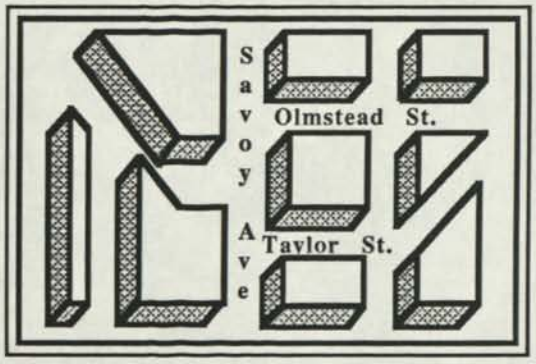

There were approximately $63.0 million, $58.8 million and $23.7 million of foreign pretax earnings in 1984, 1983 and 1982, respectively, upon which federal and state taxes have been provided.

Deferred (prepaid) taxes on income result from timing differences in the recognition of certain revenue and expense items for tax and financial reporting purposes.

Included in prepaid income taxes are prepaid taxes relating to such timing differences of $26,751,000 and $12,061,000 in 1984 and 1983, respectively. The sources of these differences and the tax effect of each amount are computed by applying the statutory federal income tax rate to income before taxes.

The DISC (Domestic International Sales Corporation) tax benefit shown on the following page is attributable to the reversal of deferred taxes previously provided on DISC earnings accumulated through September 28, 1984, in accordance with the Tax Reform Act of 1984, and has been reflected as a reduction in the provision for taxes in the fourth quarter of fiscal 1984.


Cut Here




Our Newest
Watermill Restaurant
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The Watermill Restaurant is located between Olmstead St. and Taylor St. on Savoy Ave. Plenty of Free Parking. Open 11am-12pm Mon. thru Sun.

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First Class Mail

ANNOUNCING THE OPENING OF
THE WATERMILL RESTAURANT
AT 101 SAVOY AVE.

# G·R·A·N·D O·P·E·N·I·N·G

# 1984 Republican Convention

Last month in Decker Communications Report, we featured lessons learned from speakers at the Democratic Convention. The lessons were different in Dallas. For the most part it was as if the media masters behind the scenes managed the speakers to serve as a colorless setting from which President Reagan could sparkle like a diamond. In contrast to the Cuomo's, Jackson's, et. al., there were few standouts. But there were lessons.

## Katherine Ortega: Confidence was lacking

As a keynote speaker, she was out of her league. You had to feel sorry for her. Here was a good example of why we shouldn't thrust people into positions before they're ready -- or better yet -- why people should always be ready for the positions that are thrust upon them. Ortega did not have the confidence -- the personal impact -- to carry her words. If she had speaking experience, had she built up her confidence over the years, her speech would have had a much different result without changing her words.

As one commentator said, "she seemed like someone giving a valedictory address," That doesn't make for memorability. Where we'll definitely hear from Mario Cuomo again, we'll not see much of Katherine Ortega except for her signature on our money.

## Jeanne Kirkpatrick: Tough and believable

On the other hand, she was a pleasant surprise -- a tough speech from a tough lady. She was strong, straightforward and forceful.

What makes her so believable is a good low voice that is not affected but reeks of credibility. She had very strong eye communication with the crowd -- better than almost all the convention speakers. (Surprisingly, neither Democrats and Republicans knew how to use the teleprompters well, obviously a non-partisan issue.) Her phrasing, timing, and pausing were excellent, reminding one of Barbara Jordan, another great speaker.

## Baker, Kemp, Dole: Sincerity but no fire

This trio of potential 1988 campaign frontrunners seem to have blended together -- adequate enough, sincere, earnest, but lacking the fire in the belly. And in the case of Robert Dole, his final "thank you" was tossed off as if he had to get off the stage quick, and maybe he did. His wife was next.

## Elizabeth Dole: Bright but cliched

She was good -- yet we'd give her mixed reviews. Introduced by her husband as having laryngitis, she did super with the physical affliction, and made no excuses or weak asides about it. She's obviously a strong and bright speaker -- with good voice, bearing and posture, and eye communication. Why then resort to old cliches, as in her opening, "Thank you for that great introduction, Bob. You gave it just like I wrote it."

## George Bush: Obvious second fiddle

In preparation for "The Great Communicator," there was the acceptance speech of good old reliable George Bush. He is professional, he is polished and he is persuasive. Yet he is no burning Bush -- here we miss that fire of enthusiasm and excitement. Perhaps, like Ferraro, he consciously or unconsciously holds back because he's in second position. If so, he is a lesson to all of us whom hold ourselves back, whether from a perceived lesser position or from just a lack of confidence. Our energy and enthusiasm will suffer for it.



Created using MacDraw and printed on the Apple LaserWriter.

# The Watermill Restaurants, Inc.

125 West Broadway
Personnel, Suite 300
Cambridge, Ma. 02142

**PERSONNEL REQUISITION**

REQUISITION NO.

EMPLOYMENT SPECIALIST

| | | |
|---|---|---|
| JOB TITLE | | DATE NEEDED |
| DEPARTMENT NAME/NUMBER | JOB LOCATION | |
| SHIFT ☐ DAYS ☐ SWING ☐ GRAVEYARD | SALARY RANGE | ☐ EXEMPT ☐ NON-EXEMPT |
| ☐ PERMANENT ☐ TEMPORARY (DURATION) | | PAY GRADE |
| ☐ ADDITION TO HEAD COUNT ☐ REPLACEMENT (NO ADDITION TO HEAD COUNT) | | NAME OF EMPLOYEE REPLACED |
| CAUSE OF REPLACEMENT | | |
| TO WHOM WILL EMPLOYEE REPORT? | | WHO WILL CONDUCT INTERVIEW |

**QUALIFICATIONS**

EDUCATION

EXPERIENCE

**DESCRIPTION OF JOB (BE SPECIFIC)**

Created using MacDraw and printed on the Apple LaserWriter.

**APPROVALS**

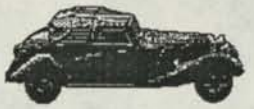
| | | | | | |
|---|---|---|---|---|---|
| INITIATOR | DATE | DIRECTOR | DATE | PRESIDENT | DATE |
| SUPERVISOR/MANAGER | DATE | VICE PRESIDENT | DATE | PERSONNEL | DATE |

**NEW HIRE**

| | | |
|---|---|---|
| NAME | START DATE | SALARY |

Form Number 001-0013-00 3/81

[X] CASH [ ] B of A CARD [ ] MASTER CARD [ ] UNION 76 CARD



# Center City Motor Works

"Quality Service Since 1937"

338 West Marina Blvd.
San Diego, CA 92110
(619) 786-7826

CUSTOMER REPAIR ORDER 1010

DATE 1/12/85

| | |
|---|---|
| LUBE | 6 |
| CHANGE MOTOR OIL | 12 |
| CHANGE TRANS GREASE | |
| CHANGE REAR AXLE OIL | |
| REPLACE AIR FILTER | |
| ADJ CLUTCH | |
| SERVICE AUTO TRANS. | |
| ROTATE TIRES | |
| BALANCE TIRES | |
| ALIGN WHEELS | |

INITIAL ESTIMATE $89.00

ADDITIONAL AUTHORIZATION JOHN

BYWHOM

TIME

I hereby authorize the above repair work to be done along with necessary materials. You and your employees may operate above vehicle for purposes of testing, inspection or delivery at my risk. An express mechanic's lien is acknowledged on above vehicle to secure the amount of repairs thereto. You will not be held responsible for loss or damage to vehicle nor articles left in vehicle in case of fire, theft, accident or any other cause beyond your control.

CUSTOMER WANTS REPLACED PARTS YES [X] NO [ ]

TIME PROMISED AM 5.00 PM

WRITTEN BY

| ADD AUTH. | BYWHOM | TIME | DATE |
|---|---|---|---|
| | | | |

DATE 1/12/85

SIGNED AND RECEIPTED X_____

I acknowledge notice and oral approval of an increase in the orginal estimated price

CUST. INTL. X

NAME Harold Norseman PHONE WHEN READY [ ]

ADDRESS 6755 La Pacifica Blvd, La Jolla ZIP 90027

BILL TO Same PHONE RES. 555 7345

ADDRESS PHONE BUS 555 6785

| YEAR | MAKE | LICENCE | SPEEDOMETER |
|---|---|---|---|
| 84 | Volvo DL | 3CAY166 | 14567 |

| MODEL SERIAL | DEL | SELLING DEALER |
|---|---|---|
| | | |

WE RECOMMEND THE FOLLOWING REPAIRS

| CODE | | QTY | PART NO | DESCRIPTION | SALE |
|---|---|---|---|---|---|
| ax | | 1 | V-12985 | Speedom. Cable | 38 |

ALL PARTS INSTALLED ARE NEW UNLESS SPECIFIED OTHERWISE

SUBLET REPAIRS CUST INTL. X

| REPAIR ORDER - LABOR INSTRUCTIONS | |
|---|---|
| Replace Speedometer Cable | 20 |
| Created using MegaForm from Megahaus and printed on the Apple LaserWriter | |

| QTY | OIL GREASE | | SALE |
|---|---|---|---|
| 4 | QTS. OIL @ 2 | 8 | |
| 1 | LBS. GREASE @ 2 | 2 | |
| | AUTO TRANS. OIL | | |
| | TRANS. GEAR OIL | | |
| | TOTAL OIL GREASE | $10.00 | |

A $2.00 service charge has been added to your repair bill to cover supplies, which includes shop towels, solvents, miscellaneous nuts and bolts, etc.

| | |
|---|---|
| LABOR | $38.00 |
| SUBLET | |
| PARTS | $38.00 |
| ACCESSORIES | |
| GAS, OIL, GREASE | $10.00 |
| SERVICE CHARGE | $2.00 |
| TAX | $5.28 |
| COST | |
| TOTAL AMOUNT | $93.28 |

THANK YOU

*Press Information*

## AppleTalk™ Personal Network Product Specifications

**Topology:**
Bus

**Architecture:**
Open

**Maximum Number of Connections**
32

**Medium:**
Shielded twisted-pair

**Connection:**
Passive drops

**Operating Distance:**
1,000 feet

**Speed:**
230.4 kilobits per second

**Link Access Protocol:**
Carrier-sense multiple access with collision avoidance (CSMA/CA)

**Frame Format:**
SDLC (Synchronous Data Link Control)

**Configuration:**
Self-configuring, no user switches or action to identify devices

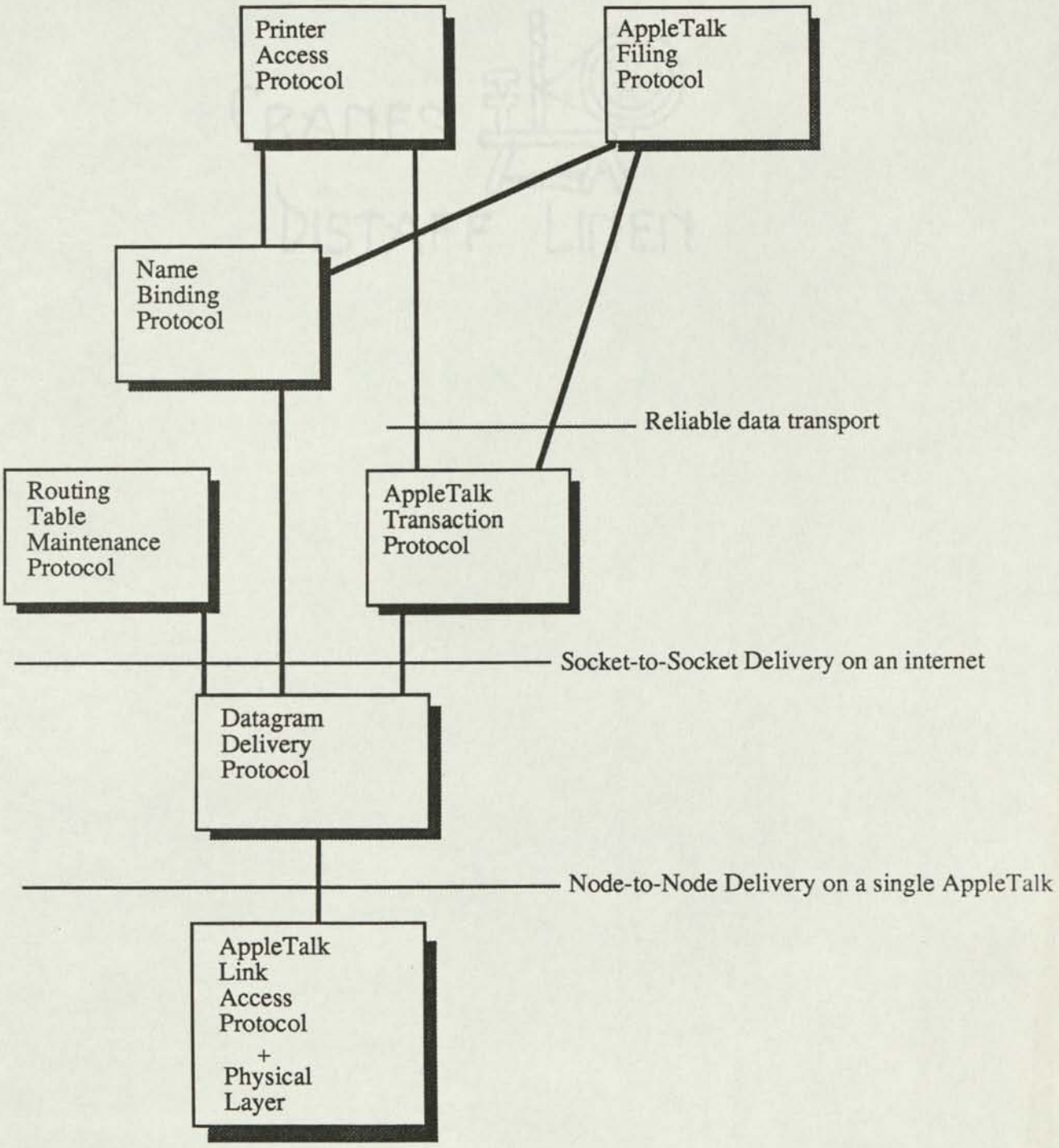
**Environment:**

| | |
|---|---|
| Operating temperature: | 0°C to 40°C |
| Storage temperature: | -40° C to 70°C |
| Relative humidity: | 5% to 95% |

**Apple Computer, Inc.**
20525 Mariani Avenue
Cupertino, California 95014
(408) 996-1010
TLX 171576 TWX 9103382054

# AppleTalk Protocol Architecture

Layered, Open System



## LaserWriter Product Specifications

**Marking Engine:**
Canon LBP-CX laser-xerographic engine

**Controller:**
Controller hardware contains: 12mhz 68000, 1/2 Meg of ROM, 1 and 1/2 Meg of RAM, AppleTalk™ and RS-232C interfaces.

**Print Quality:**
All text and graphics printed at 300 dots per inch.

**Built-in Fonts:**
Times™, Times Bold, Times Italic, Times Bold Italic, Helvetica®, Helvetica Bold, Helvetica Oblique, Helvetica Bold Oblique, Courier, Courier Bold, Courier Oblique, Courier Bold-Oblique and Symbol are built-in. Underline, Shadow and Hollow styles for the above fonts can also be generated. Full international character sets. Supports all Macintosh fonts as downloaded bitmaps.

**Built-in Font Sizes:**
Full range of sizes from 4pt on up. Limited at the low end by the resolution of the printer and at the high end by the size of the paper.

**Speed:**
8 pages per minute maximum throughput. Actual performance is application and document dependent.

**Interface:**
AppleTalk and RS-232C.

**Printing Protocols Supported:**
POSTSCRIPT™ and a subset of Diablo® 630 command set.

**Recommended Duty Cycle:**
Less than 4000 pages per month.

**Printing Material Feed:**
Automatic from paper input cassette.
Manual single sheet feed.

**Printing Materials:**
Best results with 16-21 lb. single sheet copier bond. Can use most letterhead and colored stock from 8-34 lb. Can also use standard overhead transparency material. Envelopes and labels supported via manual feed.

**Apple Computer, Inc.**
20525 Mariani Avenue
Cupertino, California 95014
(408) 996-1010
TLX 171576 TWX 9103382054

**Printing Material Sizes and Capacity:**

Supports Letter, Legal, A4, and B5 sizes. Input cassette holds 100 sheets, output tray holds 20 sheets.

**Maximum Printable Surface:**

| Dimension | Letter | Legal | A4 | B5 |
|---|---|---|---|---|
| Width (inches) | 8.0 | 7.0 | 7.5 | 7.0 |
| Length (inches) | 10.9 | 12.5 | 10.5 | 10.0 |

**Dimensions:**

| | |
|---|---|
| Width | 18.5 inches |
| Depth (body only) | 16.2 inches |
| Depth (with trays) | 28.2 inches |
| Height | 11.5 inches |
| Weight | 77 lbs. |

**Power:**

| | |
|---|---|
| US Model | 115 VAC (± 10 percent) 60Hz |
| European Model | 220 VAC (± 10 percent) 50 Hz or<br>240 VAC (± 10 percent) 50 Hz |

**Safety and Environmental Compliance:**

UL 660F listed
CSA LR49439 certified
FCC Class B
BRH certified Class I laser product

**Temperature:**

| | |
|---|---|
| Operating | 50-90 degrees F (10-32.5 C) |
| Storage | 32-95 degrees F (0-35 C) |

**Humidity:**

| | |
|---|---|
| Operating | 20-80% relative humidity |
| Standby | 10-80% relative humidity |

**Altitude:**

| | |
|---|---|
| Operating | 0-8200 feet |
| Non-operating | 0-49000 feet |

**Audible Noise:**

| | |
|---|---|
| Operating | less than 55 dB (A) |
| Standby | less than 45 dB (A) |

*Press Information*

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Palo Alto, CA 94303
Katherine Cadigan - Christopher Dorst
(415) 494-2030

Prepared for:

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*FOR IMMEDIATE RELEASE*

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The printer, which is an integral part of The Macintosh™ Office, provides flexibility and quality of output usually restricted to printers costing several times as much. The LaserWriter achieves full-page 300-dots-per-inch output through a Canon™ LBP-CX10 engine, a powerful built-in computer designed by Apple and a software language called PostScript™.

"The LaserWriter is a breakthrough in visual communication that will change the way people do business on paper," said Barbara Koalkin, Macintosh Office products marketing manager. "To a large extent, business people are judged by the quality of

their written documents and presentations. We designed a shared printer that brings near typeset-quality output to the desks of these office workers.

"The LaserWriter not only replaces daisy-wheel and dot-matrix printers, but in many instances it obviates the need to go to an art department or print shop for typesetting and paste-up."

**The LaserWriter Has Networking Built In**

The LaserWriter has the AppleTalk Personal Network built in, so that one printer can be shared by up to 31 people in a work group. In addition to the AppleTalk port, the LaserWriter has an RS-232 port to connect it to devices outside AppleTalk that use this communications standard. Through a built-in program to emulate the Diablo™ 630, a popular daisy-wheel printer, IBM™ and IBM-compatible personal computers using WordStar™ or other IBM PC software can print directly on the LaserWriter with no software modification.

Key business software available for the Macintosh computer will produce output from the LaserWriter without modification. This software includes Jazz™, the integrated business-software package from Lotus Development Corp.; the Microsoft™ series; and all Apple® Macintosh software. In addition, new applications are being developed for Macintosh to take advantage of the LaserWriter, including Aldus Corp.'s PageMaker™, a package that allows users to design and compose layouts for such publications as newsletters, data sheets and brochures.

"We at Lotus are impressed with the quality and capability of the new LaserWriter printer," said Eric Bedell, Lotus' Jazz marketing manager. "Letters, reports, forms and presentations created on Jazz look incredible when printed on the LaserWriter.

"We believe that Jazz and the new printer offer the business professional the opportunity to create some of the highest-quality output available in today's microcomputer marketplace."

The LaserWriter printer accommodates the many sizes of paper, transparencies, envelopes and labels that offices use. It can print up to eight pages per minute, and at a rate of two or three pages a minute for even extremely complex graphics.

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Vendors of complete systems have shown interest in including the LaserWriter in their product offerings to businesses. One such company, Metaphor Computer Systems, has signed an agreement with Apple under which it will include the LaserWriter in its information retrieval and analysis system marketed to product marketing and financial departments of Fortune 500 companies.

**LaserWriter Provides Flexibility for Transparencies and Reports**

Apple designed the high-quality LaserWriter to serve a wide range of office needs, both for written reports and for transparencies used in business presentations. For example, the printer can integrate unlimited combinations of text and graphics on a single page, for reports, brochures and newsletters. It can print the very small type sizes needed for forms as well as the large type sizes needed to make transparencies for presentations. Also, the printer incorporates actual typefaces and fonts used in traditional typesetting, such as Helvetica™ and Times™, which are preferred in producing forms and newsletters.

"The LaserWriter will revolutionize presentations, one of the main ways people communicate with each other in business," Koalkin said. "Previously, transparencies for these presentations were done by hand or by art departments. Now, the LaserWriter provides the quality of art department transparencies faster than could be done by hand."

Underlying the LaserWriter's versatility is an interpretive programming language called PostScript, developed by Adobe Systems Incorporated. This flexible page-description language was created specifically for high-resolution printers and typesetting machines.

A powerful feature of the PostScript language is that it stores fonts as mathematical formulas, or "outlines," rather than as a bit map for every size, style and orientation of a typeface. Using these outlines, PostScript can direct the printer to generate characters in a wide range of point sizes, from three points up to more than 720 points, limited at the high end only by the size of the paper. (Seventy-two points measures one inch.

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Besides text characters, PostScript also directs the production of extremely high-resolution line art and graphics. In fact, the graphic capabilities of the LaserWriter exceed even those possible on the Macintosh screen.

The LaserWriter is the first personal-computer printer to be awarded license to use the original Helvetica and Times typefaces. Times is the most common typeface for newspapers, and Helvetica is the most popular for business forms. Also built into the printer are Courier and a mathematical Symbol font. The printer can also support all of the current Macintosh typefaces. Apple will be releasing additional "downloadable" fonts for the printer, selected from the typeface libraries of the International Typeface Corp. and the Mergenthaler, Linotype, Stempel, Haas typeface library.

The software is device-independent, which means that any workstation, including the IBM PC, for instance, can take advantage of the LaserWriter through PostScript. Similarly, Macintosh applications can print on any PostScript-compatible printer or typesetter, with no software changes.

"PostScript is being viewed by the printing industry as the first widely adopted page-description standard," Koalkin said. "As demonstration of this fact, Linotype, a division of Allied Corporation, is announcing a line of AppleTalk- and PostScript-compatible typesetters.

"Macintosh users will be able to hook up their machines to these high-end phototypesetters over the AppleTalk Personal Network and achieve resolution of up to 2,540 lines per inch."

**Hardware Built to be Reliable, Powerful**

The LaserWriter contains the most powerful computer ever designed by Apple. At the heart of the LaserWriter is a 12-megahertz Motorola™ 68000 microprocessor. The printer's computer also includes 1/2 megabyte of read-only memory (ROM), plus 1 1/2 megabytes of random-access memory (RAM). This powerful computer is necessary to provide the flexibility and quality of output that businesses need for their day-to-day printing requirements.

The LaserWriter's Canon engine contains the laser and the printer's mechanical parts. The engine was designed for easy servicing without the mess normally associated with adding toner to printers or copiers. Components that need regular replacement, including toner and the imaging scroll, are isolated in a removable cartridge for convenient access. Cartridges last for 2,000 to 3,000 pages, after which users easily remove and replace them without calling a service representative.

**Price and Availability**

The LaserWriter printer will sell for a suggested retail price of $6,995, including toner cartridge. It will be available in March 1985 in the United States and Canada through all Apple distribution channels, and in June 1985 internationally.

-30-

*Press Information*

# APPLE COMPUTER, INC. INTRODUCES THE MACINTOSH OFFICE

John Sculley
President and
Chief Executive Officer

Steven P. Jobs
Chairman of the Board

**Apple Computer, Inc.**
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One year ago, we introduced the Macintosh™ personal computer. Within 100 days it was hailed as an industry milestone. Macintosh heralded an era of new, intuitive interactions between people and computers. It changed forever people's expectations of what a computer should be and how it should perform.

**1984--The Beginning**

In 1984 we successfully established Macintosh as a stand-alone productivity tool. Macintosh was designed to serve the needs of individual "knowledge workers," those business people who transform information and ideas into reports, plans, budgets, memos and presentations. We concentrated on providing knowledge workers with the tools to do these tasks easily and inexpensively.

Macintosh was the first step in our larger plan to provide solutions needed by business. We set three goals in the year following the Macintosh introduction--1. to sell 250,000 Macintosh computers, 2. to have at least 150 software applications available, and 3. to establish Macintosh as the third industry milestone, following the Apple II and the IBM PC. With more than 250,000 units sold and more than 300 software packages shipping, we have not only met, but exceeded our goals.

Now that we've demonstrated the strength of Macintosh, we can unfold our strategy to take the concepts of innovation and radical ease of use more deeply into the office.

**1985--The Macintosh Office**

In 1985, we'll concentrate on increasing the productivity of knowledge workers through improved communication. We'll provide them with an environment--The Macintosh Office--where they can work together in the most productive ways possible.

Today we are announcing the AppleTalk™ Personal Network and the LaserWriter printer. And these two products are only the next step. Our strategy over the next few years is to introduce a series of products to meet the needs of work groups. Through

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these products we plan to achieve our long-term goal of establishing Macintosh as the second standard in a variety of business markets.

Our products must allow people to exchange information among their Macintosh computers and other products already used by business. For this reason, The Macintosh Office products will communicate and coexist with the standards that are already established.

The concept of The Macintosh Office builds on an understanding of how people in business really work. Our research shows that knowledge workers spend about 80 percent of their time working closely with five to 25 other people. The remaining 20 percent of the time, workers need to reach beyond this group. The Macintosh Office provides tools to let knowledge workers communicate within the work group and tie into outside information.

These work groups exist everywhere in business. Our target market includes the work groups in small, medium and large businesses, all of which communicate and process information.

**Products to Improve Productivity in Work Groups**

At the heart of The Macintosh Office, of course, is Macintosh. The Macintosh family of products, built on the premise of power and radical ease of use, includes the entry-system Macintosh 128K; the more powerful Macintosh 512K, the Macintosh most frequently chosen by business users; and the Macintosh XL, for users who need more memory, a larger screen and a built-in hard-disk drive.

Working in combination with its hardware products, The Macintosh Office has powerful business software solutions. More than 350 software packages already exist for Macintosh. Soon the recently introduced Jazz will be added, the integrated business software package from Lotus Development Corp. Third-party software packages already available include powerful high-end word-processing programs, such as Microsoft Word, and sophisticated data bases such as Helix from Odesta.

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Throughout the year we will see more specialized software that takes advantage of the distinctive features of the products in The Macintosh Office, adding to the exciting new business software programs entering the market continually.

To really take advantage of the Macintosh hardware and software solutions, Macintosh users in work groups need to be able to communicate with each other. The AppleTalk Personal Network is a breakthrough in price/value that brings Macintosh radical ease of use to work groups.

Networks have been slow to catch on in business, mainly because they're too expensive, they're too complicated to install and use and there's too little software available for them. But software won't be developed without a large installed base of networks to write for, so the network market is at a standstill.

AppleTalk will change all that. For a suggested retail price of only $50 a connection, AppleTalk allows Macintosh and other personal computers to share peripherals and lets up to 32 computers and peripheral devices communicate with each other within work areas of 1,000 feet. AppleTalk can act as a tributary to other networks for communication outside AppleTalk, and multiple AppleTalk networks can be bridged together to extend beyond 32 connections.

AppleTalk will do for networks what personal computers did for computing--bring the services inexpensively to a great many individuals. Leading companies, such as 3Com Corp., Sytek Inc. and Hayes Microcomputer Products Inc., are already working on products for AppleTalk. We are relying on continuing strong support from third-party developers, who are taking advantage of AppleTalk's open architecture to design innovative and powerful network-based hardware and software products based on the network.

Knowledge workers need to be able to express their ideas visually in written form and for presentations. Apple's LaserWriter is a breakthrough in visual communication that brings to workstations a productivity tool never before available.

The LaserWriter is a high-resolution laser printer that can be shared in a work group to print such documents as newsletters, overhead transparencies, business forms, memos, brochures and reports. Through its dynamic built-in software language,

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PostScript, plus its built-in computer--the most powerful Apple has yet built--and a Canon LBP-CX10 engine, the LaserWriter produces text and business graphics with quality and flexibility previously restricted to printers costing several times as much. It prints characters and graphics in virtually any size at full-page 300 dots-per-inch resolution.

The key business software available for the Macintosh will produce output from the LaserWriter without modification. Also, a built-in program emulates the Diablo 630, a popular daisy-wheel printer, letting IBM and IBM-compatible personal computers using IBM PC software print directly on the LaserWriter with no software modifications.

The printer will change the standard for written business communication by providing near typeset-quality text and art department-quality graphics directly to business people at their desks.

Work groups sharing a network need centralized storage for files and electronic mail. Apple's file server will be just one of many file and disk servers on the market for The Macintosh Office.

The file server, with 20-megabyte and 40-megabyte capacities, will be Apple's hard-disk electronic communication solution for work groups. It will have a built-in computer; software that provides file transfer, electronic mail and print-spooling; and built-in file-management software that will form the basis of multiuser applications to be developed by third parties.

The file server's design encourages development of both hardware and software products. It contains a standard SCSI peripheral interface to support hardware add-ons such as tape back-up and additional storage. Also, it uses the Macintosh operating system and development environment, making it easy for third-party software developers already familiar with Macintosh to write applications for the file server.

The Macintosh Office will also include a variety of file server and shared disk products from third parties, ranging in price and features. Some will be available by as soon as the second quarter of 1985. For example, disk servers will be provided by Micro Design and Sunol Systems Inc., and a Unix service system called "Ultra Office" from Lutzky-Baird Associates will be available in the first quarter.

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Apple will also provide utilities that make Macintosh an even more useful business machine. For example, during 1985 we will enhance the Macintosh user interface and file system to significantly improve Macintosh performance, particularly with hard disks.

**Coexistence with the IBM World**

We realize we must connect The Macintosh Office world with the IBM world. It is necessary for Apple to connect with the IBM world at three strategic points: mainframe corporate data bases, System 36 and the PC/PC network level.

In the mainframe world, Apple's existing data communications products promote coexistence by allowing Macintosh to communicate with other systems. MacTerminal, introduced last year, provides a single-user interface to a broad selection of computer environments, including the IBM 3270 and DEC VT 100 terminals. The Apple Cluster Controller provides a pathway between Macintosh and IBM networks based on bisynchronous or System Network Architecture (SNA) protocols. With either the Cluster Controller or with AppleLine, which emulates a 3278 terminal, the Macintosh family can talk directly to IBM in 3270 protocols.

We will continue our commitment to interface with IBM standards. Apple and third-party developers will provide gateways from AppleTalk into different IBM host computing environments, giving networked Macintosh users on AppleTalk the same access to mainframe information currently available to stand-alone Macintosh computers through MacTerminal, AppleLine and the Apple Cluster Controller. Also, Macintosh users will be able to exchange revisable documents with IBM systems through the DIA/DCA format.

To integrate the IBM PC into The Macintosh Office, we will provide an AppleTalk card for the IBM PC that puts it onto the AppleTalk network, with software to allow it to print on the LaserWriter and to use Apple's hard-disk file-server product. Additional software will let the IBM PC also be used as a file server itself and as a communications gateway into IBM's PC Network.

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We will be giving details on these products and others as we get closer to the time of their introduction.

**Reaching Work Groups with the Products**

The work group is a retail concept, and The Macintosh Office products provide retail solutions. Because one-third of our dealers sell directly to businesses, we will be using our retail channels--traditionally the heart of Apple's business--to sell to most small and medium businesses and to departments of companies for whom dealer-provided training and support are more economical.

These retailers include well-known chains such as BusinessLand, Moore Business Centers (formerly The Genra Group) and Sears Business Systems Centers. They usually supply in-store staffs with experienced sales personnel who work outside the store calling upon businesses and coordinating customer support.

We will use our national accounts sales force to sell to very large corporations, which have on-site service needs and usually must coordinate purchasing among multiple locations. Apple will also sell products using value-added resellers (VARs) wherever appropriate.

**1986--And Beyond**

In 1986 and beyond, we will focus on expanding the solutions for work groups and encompassing the needs of departments and organizations.

In the future, we will see more Macintosh Office applications moving from horizontal toward vertical markets. Because vertical applications are often used by people with limited computer experience, there will be an ever-increasing need for software solutions that provide powerful performance while being as intuitive and easy to use as possible. The Mactinosh Office will support the vertical market needs of small and medium businesses and continue to reflect our commitment to performance and ease of use.

The LaserWriter and the printing standard it establishes with PostScript will give rise to high-end PostScript laser printers and phototypesetters that will let business

people use their Macintosh computers with a wide range of printers with no changes to the Macintosh software.

Our file server, as the hub of the work-group network, will expand in its capabilities--for example, forming the basis for multiuser data-base and accounting servers and for work group services such as establishing calendars and schedules. Also, it will continue to expand its circle of add-on products from third-party developers.

To be more fully compatible with existing office standards, Apple and third-party developers will announce a range of products to allow communication with IBM-compatible systems, including IBM's System 36 minicomputers.

Further, we will introduce additional products that extend the Macintosh family to support more powerful business applications.

**Our Commitment**

The Macintosh Office will deliver the products needed by business today and in the future. With Macintosh established as a serious personal productivity tool, we are extending this productivity to work groups in a large variety of businesses.

We will move forward one step at a time, maintaining our commitment to give businesses the powerful and flexible solutions they need. Finally, we will keep developing innovative new marketing concepts to best reach the millions of businesses within and outside the United States.

The Macintosh Office brings Apple's innovation to business. Our identity lies in innovation, and our mission in business remains what it has always been for us: to produce powerful, low-cost, easy-to-use products that harness high technology for individuals.

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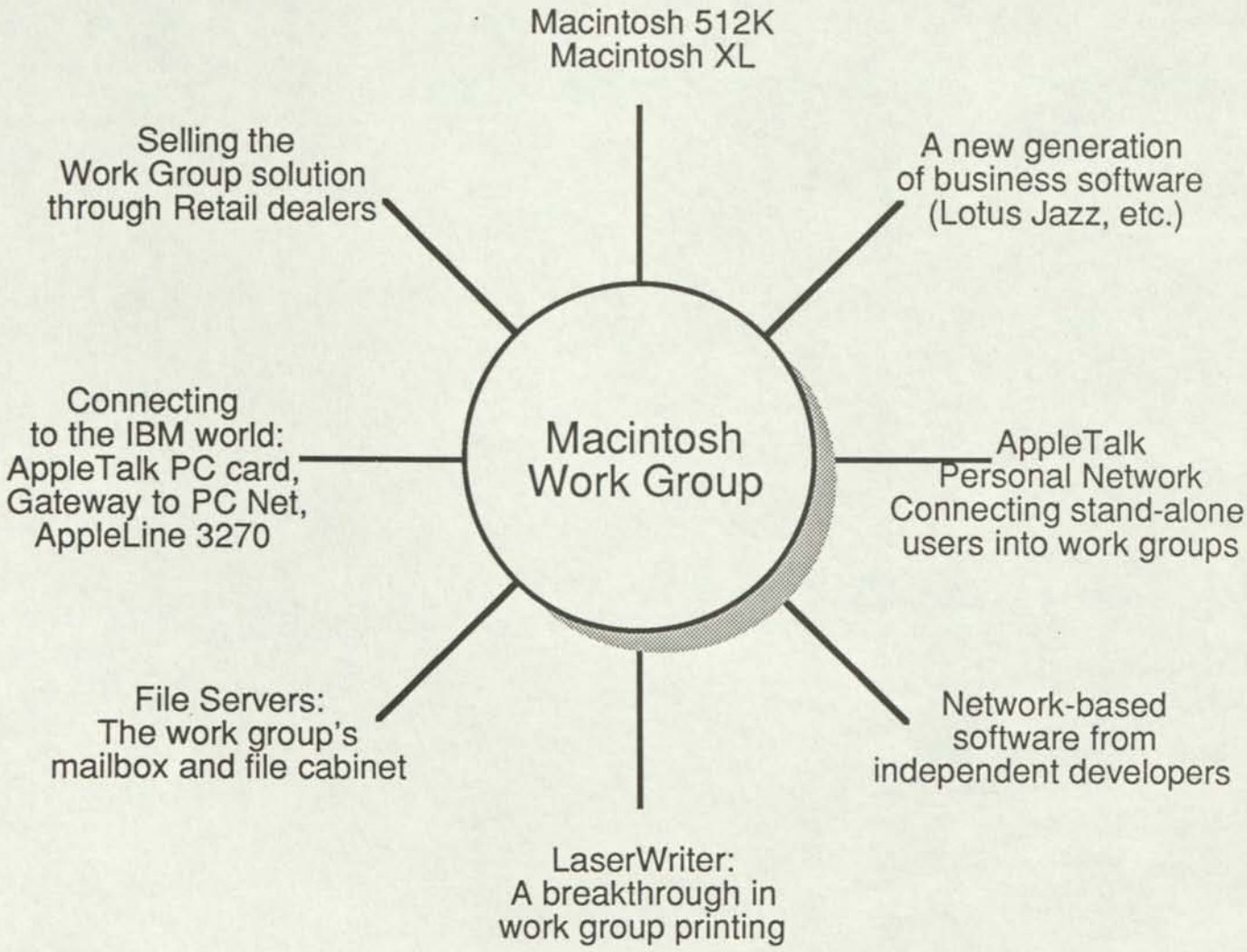
**1984 was the year of the stand-alone personal computer.**

**1985 will be the start of the Work Group.**



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*FOR IMMEDIATE RELEASE*

## APPLE ANNOUNCES THE APPLETALK PERSONAL NETWORK

CUPERTINO, Calif., January 23, 1985--Apple Computer, Inc. today introduced AppleTalk™, the low-cost personal network for The Macintosh™ Office computers and related peripherals. The AppleTalk Personal Network lets personal computers share high-performance peripherals and connects computers within a work area of approximately 1,000 feet for a suggested retail price of only $50 per connection, a fraction of current networking costs. AppleTalk can also serve as a tributary system, using bridges and gateways to link to other networks.

"With AppleTalk, we hope to do for networks what personal computers did for computing--bring the services easily and affordably to a great many people, " said Barbara Koalkin, Macintosh Office products marketing manager. "We have developed a general-purpose personal network that is easy to install and easy to use while being powerful, fast and truly revolutionary in price. We want the third-party developer community to have free rein with AppleTalk to design products that add value to the network."

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A single AppleTalk network connects up to 32 devices, with the computers and peripherals configured in any combination. Personal-computer users can share peripherals such as file servers and Apple's new LaserWriter printer.

Apple also designed AppleTalk to interact with other networks. Through intelligent bridges, users will be able to connect two or more AppleTalk networks to form larger networks. AppleTalk networks will also be able to communicate with other networks through intelligent gateways. Using AppleTalk Personal Networks as tributary systems in these ways, work groups can exchange information with other groups and with larger computer networks.

"In offices, people spend most of their time working closely with about five to 25 other people, doing related or common projects," Koalkin said. "Until today, networks for these offices have been complicated to install, hard to use and expensive, all of which have limited the number of personal computers currently on networks to less than five percent. The AppleTalk design has been optimized to be a work-group networking solution that is extremely easy to install and use, thus making it more attractive to work groups in businesses of all sizes."

**Developing Products for AppleTalk**

More than 50 companies already have products under development for the AppleTalk Personal Network. Among the new products are hardware devices that connect Apple computers with IBM Personal Computers, an AppleTalk interface to the Ethernet local-area network, gateways to IBM networks, a Unix file server, hard-disk servers and others.

"We have been creating an Ethernet-based, multivendor environment for personal computers since 1982," said Bob Metcalfe, chairman of 3Com Corp., which has developed an Ethernet interface for AppleTalk. "By opening up AppleTalk to developers, Apple is allowing us to extend this environment to include The Macintosh Office."

Apple has published all protocols for AppleTalk. The architecture is layered, and it is "open"--as opposed to proprietary--at every layer. Developers and users can gain

access to the network as well as add their own protocols at any layer. Apple expects that publishing complete protocols in this way will spur developers to provide innovative products for AppleTalk.

In addition to positive response from developers, Apple has also received strong support and acceptance for AppleTalk from members of the Apple University Consortium. For example, beginning last October, 1,200 Macintosh computers were put on a number of AppleTalk networks at Dartmouth College. The networks, located in student dormitories and campus buildings, are being used for terminal emulation for access to the college's mainframe computers and for document and file transfer between Macintosh computers.

**Shared Peripherals will have AppleTalk Built In**

Apple's LaserWriter already has AppleTalk built in, as will all future Apple peripherals for the network, including the file server to be introduced later in 1985.

"Including the network as an integral part of the design of the peripherals reduces the cost and complexity for end users, who don't have to add cards to their equipment to let them work on the network," Koalkin said.

Apple also expects that third-party developers will start building AppleTalk into their hardware products because of advantages in cost and ease of development.

**Open Architecture Stresses Simplicity, Power and Versatility**

Apple designed the AppleTalk Personal Network with a specific goal in mind: to provide work groups with a network that is low-cost and easy to install and use, yet powerful enough for building a broad range of network services for work groups.

Because the circuits to support AppleTalk were built into the Macintosh family of products at the outset, users do not have to open their machines to add cards to connect to AppleTalk. The AppleTalk Connector Kit consists of a connection box and cables to link a device to the network, and installation takes only a few minutes. Unlike existing networks, AppleTalk needs no network administrator to install or configure it.

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Apple's software design conserves the network's data bandwidth so that data can be transferred at speeds comparable to those of networks with much higher bandwidths. Apple was able to maximize the use of the network's bandwidth of 230.4 kilobits per second by designing very efficient software protocols. Six kilobytes of software (for the Macintosh)--as compared to dozens of kilobytes for most other networks--are needed to implement the basic network protocols. Small software size also helps speed information transfer through the network.

Much of the AppleTalk architecture is already built into Macintosh and will be built into all the peripherals designed for the network. With greater intelligence inside the computers and peripherals and outside of the cable, fewer bits are required to transmit information along AppleTalk cables. Thus, the power of the computer and peripherals reduces the network load.

**Controlling Traffic Along AppleTalk**

The devices connected to an AppleTalk Personal Network exchange data over a shared, shielded, twisted-pair cable. AppleTalk controls traffic using a software protocol called carrier-sense, multiple access with collision avoidance (CSMA/CA), which was designed to allow all devices to compete equally for access to the cable.

With CSMA/CA, a computer or peripheral device that has data to transmit along the network first "tests the water" by "sensing" whether the line is busy or free. If other traffic is already on the bus, the computer or peripheral device waits until the line is free before transmitting.

To avoid collision, the devices connected to AppleTalk follow a special collision-avoidance routine. Upon sensing that the line is free, a network device waits 400 microseconds plus an additional time, determined randomly by the software, before reserving the line via a quick "handshake process." This process keeps other devices from using the line at the same time. Other devices seeking access to the cable must continue to test the line until it is free, at which point they can begin the collision-avoidance cycle to reserve the network for their transmissions.

**Price and Availability**

The suggested retail price of $50 for AppleTalk includes the AppleTalk connector and two meters of cable; additional ten-meter cables and connectors may be purchased. AppleTalk will be available in March 1985 in the United States and Canada through all Apple distribution channels, and in June 1985 internationally. During the second quarter of 1985, 100-meter cable custom-wiring kits will also be available.

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