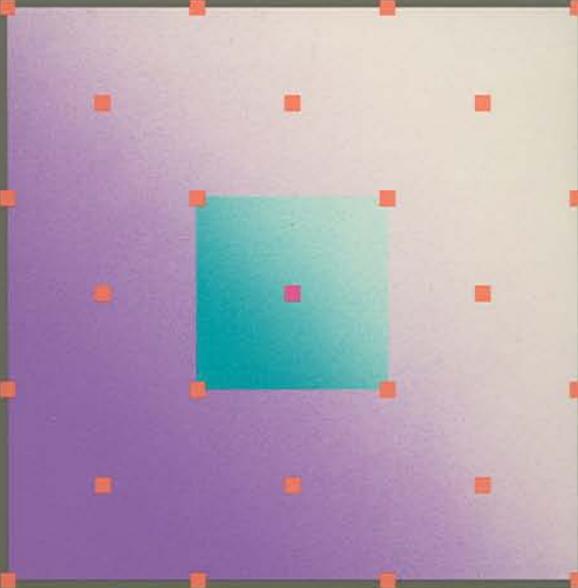
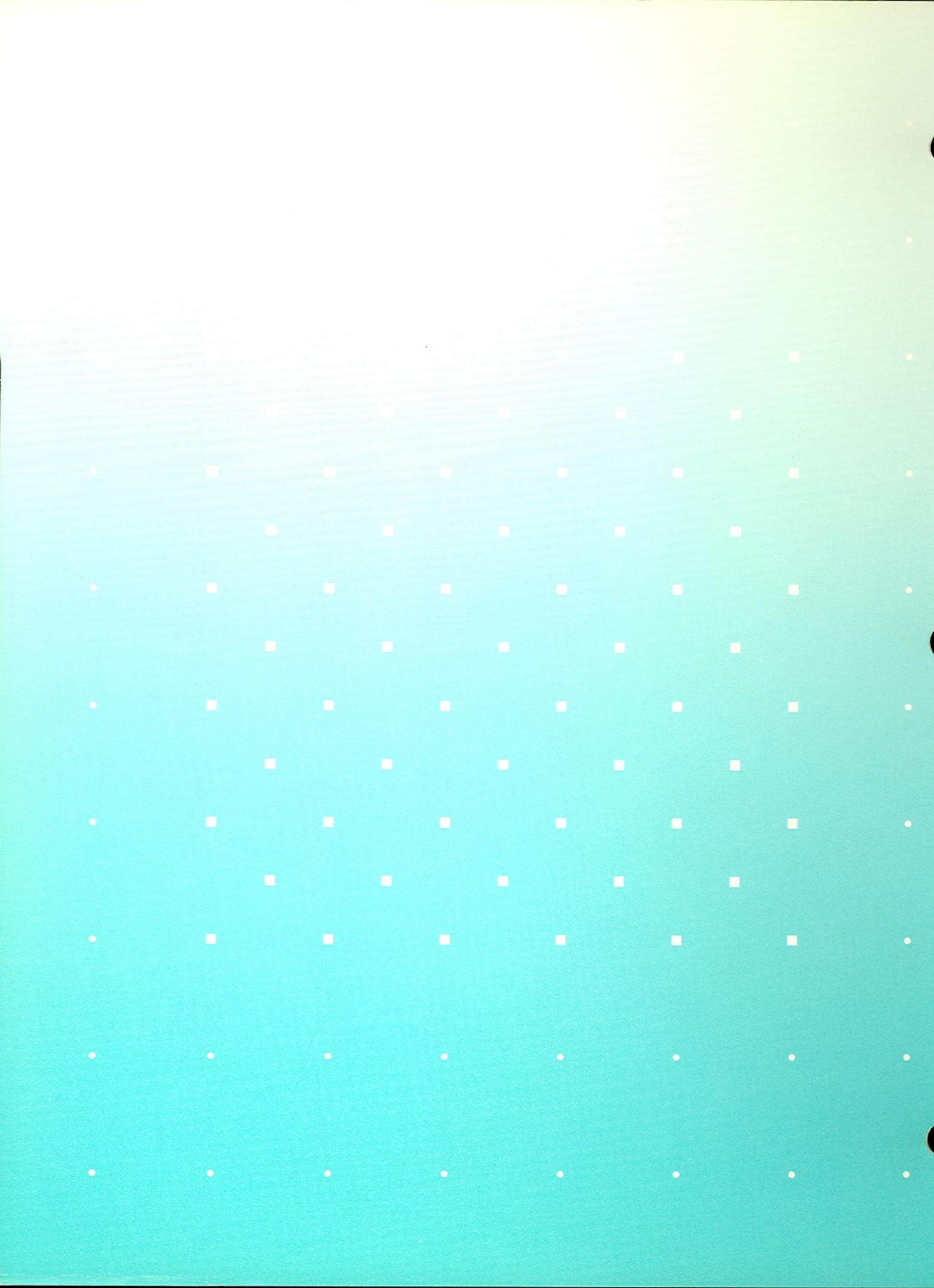


*Lisa*

Sales Marketing Binder







LISA SALES AND MARKETING BINDER - JUNE 1983

TABLE OF CONTENTS

<u>TOPIC</u>	<u>PAGE NUMBER</u>
1. POS Organization	See Tab
2. Positioning Information	Page 1
3. Product Fact Sheets	
BASIC-Plus	Page 12
COBOL	Page 11
Daisy Wheel Printer and Accessory Kit for Lisa	Page 15
Dot Matrix Printer and Accessory Kit for Lisa	Page 17
Fileware	Page 14
Lisa Office System	Page 1-3
LisaCalc	Page 4
LisaDraw	Page 5
LisaGraph	Page 6
LisaList	Page 7
LisaProject	Page 8
LisaWrite	Page 9
Parallel Interface Card	Page 10
Pascal	Page 13
4. Hardware Configurations	Page 1
5. Competitive Analysis	
<u>IBM</u>	
Company Overview	Page 1
Market Overview	Page 1-2
Product Overview	Page 2
Product Comparison	Page 2-3
Distribution	Page 3
Service and Support	Page 3
Feature Comparison Table	Page 4
<u>VISION COMPARISON SUMMARY ON THE IBM XT</u>	Page 5



LISA SALES AND MARKETING BINDER - JUNE 1983

TABLE OF CONTENTS - CONTINUED

<u>TOPIC</u>	<u>PAGE NUMBER</u>
5. Competitive Analysis - continued	
<u>DEC</u>	
Company Overview	Page 6
Market Overview	Page 6
Product Overview	Page 7-8
Product Comparison	Page 8-9
Distribution	Page 9
Service and Support	Page 9
Feature Comparison Table (DEC 350)	Page 10
Feature Comparison Table (DEC 325)	Page 11
<u>CORVUS</u>	
Company Overview	Page 12
Market Overview	Page 12
Product Overview	Page 12-13
Product Comparison	Page 14
Distribution	See Tab
Service and Support	See Tab
Feature Comparison Table	Page 15
<u>FORTUNE</u>	
Company Overview	Page 16
Market Overview	Page 16
Product Overview	Page 16
Product Comparison	Page 17
Distribution	Page 17
Service and Support	See Tab
Feature Comparison Table	Page 18
<u>XEROX</u>	
Company Overview	Page 19
Market Overview	Page 19-20
Product Overview	Page 20
Product Comparison	Page 20-21
Distribution	See Tab
Service and Support	See Tab
Feature Comparison Table (Xerox Star)	Page 22
Feature Comparison Table (Xerox 820-II)	Page 23



LISA SALES AND MARKETING BINDER - JUNE 1983

TABLE OF CONTENTS - CONTINUED

<u>TOPIC</u>	<u>PAGE NUMBER</u>
6. Documentation and Training	
Learning To Use the Lisa	Page 1
Learning to Use the Applications	Page 1
Product and Trainer Training Courses	Page 2
7. Service and Support	
Questions and Answers	Page 1-2
8. Seminar Information	
The Lisa Seminar Package	Page 1
The Seminar Binder	Page 1
Seminar Planning Guide	Page 1
VideoTapes	Page 1
Demos	Page 2
Contents of Lisa Seminar Package	Page 3
9. Merchandising and Promotion	
Lisa Sales Literature	Page 1-2
Point-of-Purchase Display	Page 2-3
Seminar Package	Page 3
Lisa Launch Package	Page 3-4
Poster and Button	Page 4
10. Ordering Procedures	
<u>ORDERING PROCEDURES</u>	Page 1
For Lisa Office System	Page 2
For Lisa Dealer Demo Unit	Page 2-3
For ProFile Sales Kit	Page 3
For Parallel Interface Card	Page 3
For Dot Matrix Printer Accessory Kit	Page 3
For Daisy Wheel Printer Accessory Kit	Page 3
For Lisa Spares Kit	Page 4-5
11. Price List	
Personal Office Systems Products	Page 1-3
Dealer Price List	



LISA SALES AND MARKETING BINDER - JUNE 1983

TABLE OF CONTENTS - CONTINUED

<u>TOPIC</u>	<u>PAGE NUMBER</u>
12. Questions and Answers	
April Update	Page 1-5
General	Page 1-7
Hardware	Page 1-3
Software	Page 1-12
Independent Software Developers	Page 1
Small Business Software	Page 1
International	Page 1
Data Communications	Page 1
AppleNet	Page 1-2
Apple/Ethernet	Page 1
Service and Support	Page 1-2
13. Sales Literature Samples	
<u>LISA DATA SHEETS</u>	
Lisa BASIC-Plus	See Tab
Lisa COBOL	" "
Lisa Daisy Wheel Printer	" "
Lisa Dot Matrix Printer	" "
Lisa Parallel Interface Card	" "
Lisa Pascal	" "
Lisa ProFile	" "
LisaCalc	" "
LisaDraw	" "
LisaGraph	" "
LisaList	" "
LisaProject	" "
LisaTerminal	" "
LisaWrite	" "
Systems Hardware	" "
Systems Overview	" "
<u>LISA BROCHURE</u>	See Tab
<u>LISA FLYER</u>	See Tab



This section is blank.

There was nothing in this divider when the original binder was issued.





## ***Positioning Information***

Apple Computer, the recognized leader in the personal computer industry, has pioneered quality, innovative, and affordable computers for the individual.

For the office market, the emphasis has been on improving the way individual professionals make decisions, analyze and manage information, and communicate with others more effectively. Lisa,<sup>TM</sup> Apple's newest personal computer for the office, is a revolutionary management decision support tool. State-of-the-art hardware and revolutionary software, representing a \$50 million and 200 person-year investment, have given Lisa an unparalleled user interface and an integration of fundamental management applications.

Lisa's extensive use of graphics, consistent user interface, and a pointing device--called a mouse--mirror the way an individual works in the office. The integration of data between applications such as word processing, data management, spread sheet, graphics, project scheduling, communications, and additional tools to be supplied by Apple and independent software vendors, set the standard for new office systems. Lisa is the first in a new generation of personal computers from Apple for the office.

Lisa joins the Apple //e and the Apple /// personal computer systems, giving office professionals a full selection of Apple computers. The Apple //e, with its new features and capabilities, enhances the Apple //'s position as the most cost-effective, general purpose, personal computer in the office.

The Apple ///, the mid-range of Apple's product line, is an extension of the Apple //e in capacity, expandability, and development tools. The Apple /// is particularly suited for small business applications.

Data communications and local area networks are fundamental for individuals in the office to create, share, and use information. Apple will introduce data communication products and AppleNet, a local area network product, in late 1983.





## Product Fact Sheet

PRODUCT NAME: Lisa Office System

APPLE PRODUCT NUMBER: A6P0001

PRICING: Suggested Retail Price: \$9995.00

WEIGHT AND DIMENSIONS:

Computer Console:  
Weight: 48 lbs. (22 kg)  
Height: 13.8 in. (350 mm)  
Width: 18.7 in. (475 mm)  
Depth: 15.2 in. (388 mm) [16 in. (403 mm) with keyboard under front]

Keyboard:  
Weight: 4 lbs. (1.8 kg)  
Height: 2.7 in. (68 mm)  
Width: 18.7 in. (475 mm)  
Depth: 6.5 in. (165 mm)

MAIN PROCESSOR: MC68000 32/16-bit CPU:  
. 32-bit internal architecture  
. 16-bit external data path  
. 7 levels of interrupts

REAL-TIME CLOCK: Software on-off control  
Interval and event timing

MAIN MEMORY: 16K bytes of boot ROM  
One megabyte of RAM  
Parity error detection

MEMORY MANAGEMENT: Permits operating system to relocate segments in memory  
Provides access controls for blocks of memory  
Segmentation into 128 variable-length blocks dynamically controlled by memory map table

POWER REQUIREMENTS: 115 or 230 V AC  
48 to 68 Hz  
270 W (maximum)

DISK STORAGE: 851K bytes (per drive) formatted storage (1.4 megabyte unformatted)  
62.5 tracks (10,000 bits) per inch  
Automatic head loading and disk eject under software control  
Smart interface with 6504 processor  
ProFile<sup>TM</sup> 5 megabyte hard disk

KEYBOARD:

Detached, IBM Selectric<sup>R</sup> type with N-key rollover  
Sculptured keytops (textured, non-slip, non-glare)  
Numeric keypad with raised dot on 5 key for quick  
positioning  
Full ASCII character set with up to 76 keys  
All keys programmable for special characters or  
functions  
Smart interface with control-oriented processor

DISPLAY:

12-inch screen (measured diagonally)  
Full-screen bit-mapped display:  
. 364 lines by 720 dots  
. up to 45 lines of 144 characters

MOUSE:

Extremely fast, intuitive cursor positioning  
Works well on any surface  
Simple one-button design eliminates confusion and the  
need to learn commands

COMMUNICATIONS  
INTERFACE:

Two serial ports:  
. intelligent controller  
. full-function, programmable (asynch, bisynch,  
SDLC, HDLC)  
. RS-232C with half- or full-duplex channels  
. full modem control and ring indicator on one  
channel  
. software-programmable baud rates  
. one parallel port:  
- 6522 interface adapter  
- 8-bit directional with handshake control

AUDIO OUTPUT:

Built-in speaker with software-controllable tone  
generator

EXPANSION BOARD SLOTS:

Three slots  
Zero-insertion-force connectors  
Direct connection to system bus  
DMA capability  
Memory-mapped I/O  
Vector interrupt capability  
Direct connection of power supply:  
. digital ground  
. +5V, +12V, -12V, -5V (100 mA maximum)  
. allows up to 15 W total (maximum rating) for  
all three cards  
. +5V standby (at 50 mA) per board

ITEMS INCLUDED:

Lisa Office System (A6P0001) includes:

- one Lisa System
- ProFile and Cable
- \* - LisaCalc
- \* - LisaGraph
- \* - LisaWrite
- \* - LisaList
- \* - LisaDraw
- \* - LisaProject

\*Individual Fact Sheets listed on following pages.

# ***Product Fact Sheet***

Product Name: LisaCalc

Apple Product Number: A6P0001 -- Included with Lisa Office System

Pricing: Suggested Retail Price: N/A  
-- Included with Lisa Office System

Compatible With: Lisa Office System

Description: LisaCalc is a powerful electronic spreadsheet and financial modeling tool that helps you grasp the impact of even the most complex financial scenario. Its huge worksheet (255 rows by 255 columns) lets you test every variable that affects your decisions. And it's easy, because LisaCalc eliminates the need to learn a modeling language.

Once you've created a spreadsheet, LisaCalc lets you transfer that information into other LisaCalc documents, into LisaGraph for graphing, or into LisaWrite for inclusion in a memo or report.

Features and Benefits: Perform arithmetic analysis quickly and easily. No special computer language or commands are required.

Analyze business and technical scenarios by examining "What if?" possibilities.

Graph data for further analysis or added impact. Move data quickly and easily into LisaGraph for plotting.

Insert LisaCalc results into LisaWrite documents. Move your spreadsheet or model into a LisaWrite document as simply as you perform any basic editing.

Standardize data collection and reports with formatted spreadsheets. LisaCalc creates standard templates for uniform data collection.

Items Included: LisaCalc Tool Diskette  
LisaCalc Manual

Equipment Required: Lisa Office System

# ***Product Fact Sheet***

Product Name: LisaDraw

Apple Product Number: A6P0001 -- Included with Lisa Office System

Pricing: Suggested Retail Price: N/A  
-- Included with Lisa Office System

Description: LisaDraw is a unique graphics presentation tool that makes it easy to create flow charts, technical diagrams, maps, pictures, and symbols for reports and presentations. Creating lines, boxes, circles, and other geometrical shapes is as easy as moving the mouse along a tabletop. Combining these shapes lets you be as creative as you like. And adding text is elementary.

With LisaDraw you can save any creation for repeated use in other LisaDraw documents. Moreover, you can easily move LisaProject schedules and LisaGraph charts and graphs into LisaDraw for customization.

Features and Benefits: LisaDraw's lines, boxes, and text let you illustrate complex aspects of your business with flow charts.

Work with graphics as easily as with text. Drawing lines, boxes, circles, and other common shapes takes just two simple moves of the mouse.

What you see on the screen is exactly what you get on the printed page. Choose from four different sizes and three styles of text, all of which can be displayed and printed in bold, italic, underlined, or shadow--or any combination.

Use LisaDraw to customize charts and graphs from other applications. Moving a LisaGraph or LisaProject chart into LisaDraw is quick and easy.

Items Included: LisaDraw Tool Diskette  
LisaDraw Manual

Equipment Required: Lisa Office System

# ***Product Fact Sheet***

Product Name: LisaGraph

Apple Product Number: A6P0001 -- Included with Lisa Office System

Pricing: Suggested Retail Price: N/A  
-- Included with Lisa Office System

Description: LisaGraph makes clear, concise graphs from even the most complex data. Moreover, LisaGraph creates those graphs automatically. Enter data in LisaGraph's spreadsheet--alongside, a presentation quality graph appears instantly. And it's easy, because there's no need to learn a graphics language.

LisaGraph makes bar, line, pie and scatter graphs. You can transfer LisaGraph charts and graphs into LisaDraw for extensive customization and create graphs from LisaCalc tables.

Features and Benefits: Give your data strong, graphic impact. Data entered into the table is plotted automatically on a graph.

LisaGraph creates bar, line, mixed bar/line, pie, and scatter graphs. You can change graph types instantly without touching the keyboard. Just use the mouse to select the graph of your choice.

Examine "What if?" possibilities--and see the scenarios graphed automatically. Data changes are re-plotted immediately.

Include crisp, clear printouts in your reports or presentations. A variety of typestyles, including large presentation-size styles, gives a typeset look.

Items Included: LisaGraph Tool Kit  
LisaGraph Manual

Equipment Required: Lisa Office System

# ***Product Fact Sheet***

Product Name: LisaList

Apple Product Number: A6P0001 -- Included with Lisa Office System

Pricing: Suggested Retail Price: N/A  
-- Included with Lisa Office System

Description: LisaList helps you create and maintain all types of lists in a personal database. With it you can easily and quickly sort through even the most detailed lists--client histories, billing records, distribution lists--for exactly the data you need. Manipulating this data is easy too, because there's no special command language to learn. And LisaList shows you exactly how your list will print.

Features and Benefits: Organize information for quick reference and easy handling. Data is entered directly into the list --there is no special command language to learn.

Customize lists for added impact. Each column may be assigned one of eight data types, such as text, zip code, money, or telephone numbers.

Search and sort complex lists in seconds. Create many different reports from one master list.

Modify lists easily to suit your specific needs. Add or remove columns at any time. Change display formats without re-entering the data.

Items Included: LisaList Tool Diskette  
LisaList Manual

Equipment Required: Lisa Office System

# ***Product Fact Sheet***

Product Name: LisaProject

Apple Product Number: A6P0001 -- Included with Lisa Office System

Pricing: Suggested Retail Price: N/A  
-- Included with Lisa Office System

Description: LisaProject is a visual project-management tool that helps you schedule and track complex projects. By dividing projects into a series of individual tasks, LisaProject helps you see the critical path, interdependencies, and the answers to "What if?" questions. And it's easy, because there's no special command language to learn. LisaProject lets you plan and track schedules in Schedule, Resource, and Task charts. And you can transfer charts to LisaDraw to customize them further.

Features and Benefits: Develop task and resource schedules to help you manage your projects better. No prior knowledge of project scheduling is required--select with the mouse, enter tasks and durations, and Lisa does the rest.

Easily update a project to reflect its current status. Critical path and project schedules are automatically revised to reflect updated start and finish dates.

Test different project scheduling scenarios quickly and easily.

Choose the type of project status chart that best fits your needs. Switch between Schedule, Resource, and Task charts instantly--use the mouse to select the chart you want from the menu.

Items Included: LisaProject Tool Diskette  
LisaProject Manual

Equipment Required: Lisa Office System

# ***Product Fact Sheet***

Product Name: LisaWrite

Apple Product Number: A6P0001 -- Included with Lisa Office System

Pricing: Suggested Retail Price: N/A  
-- Included with Lisa Office System

Description: LisaWrite is one of the most advanced word processors available for personal computers. With no complex commands to learn, you can create, revise, and print documents of any size.

Because LisaWrite lets you integrate LisaCalc models, LisaTerminal information, or other LisaWrite documents into your written document, you can compose reports and proposals quickly and efficiently.

Features and Benefits: Create formatted stationery customized to your needs--one for each type of document you write (such as memos, form letters, and reports).

Faster editing, fewer revisions--on other people's documents or your own. Powerful editing functions like cut, paste, and copy can be used on anything from a single character to an entire document.

LisaCalc analysis can be included for more complete reports. Tables are easier to create and edit with LisaWrite than on a typewriter or other word processor.

One printout is all you need. What you see on the screen--including timesteps--is what you get on paper, so you know how your final document will look before you print it.

Items Included: LisaWrite Tool Diskette  
LisaWrite Manual

Equipment Required: Lisa Office System

## ***Product Fact Sheet***

**Product Name:** Parallel Interface Card  
**Apple Product No.:** A6BB101  
**Pricing:** Suggested Retail Price - \$ 195.00 each  
**Compatible With:** Lisa Office System  
ProFile 5 Mb Disk Drive  
Apple Dot-Matrix Printer

**Description:** The Parallel Interface Card is used to connect Dot-Matrix Printers or ProFile disk drives to the Lisa computer. The Lisa contains one built-in parallel connector, and each Parallel Interface Card supports two additional parallel devices. There are three expansion slots in the system, so three Parallel Interface Cards can be accomodated supporting seven parallel peripherals.

**Items Included:** Parallel Interface Card  
FCC Label  
Hardware Warranty  
Instruction Manual

**Equipment Required:** Lisa Office System

**Procedural Note:** Since the built-in parallel connector is used with the Profile that comes with the Lisa Office System, a Parallel Interface Card is required in those systems using an additional ProFile or a Dot-Matrix Printer.

## ***Product Fact Sheet***

Product Name: COBOL  
Apple Product No.: A6D0104  
Pricing: Suggested Retail Price - \$995.00

Product Name: COBOL Manuals  
Apple Product No.: A6L0113  
Pricing: Suggested Retail Price - \$95.00

Description: COBOL for the Lisa is a full GSA high level COBOL product. By comparison, the Apple /// COBOL is a high-intermediate COBOL. COBOL programs on the Lisa are executed interpretively. COBOL defines and supports its own numerics, so IEEE numerics are not used for COBOL. However, all the standard features of a GSA high level COBOL are present and supported in the language. COBOL programs are developed and run in the Workshop, which provides a complete program development environment. The Workshop includes the command processor shell, the Mouse Editor, the EXEC file processor, system management utilities, file management utilities, and the source code transfer program, as well as other useful utility programs.

Markets and Applications: COBOL is a standard and well-known language that can be used by third-party software developers, national account customers, and individual users. Programs written in COBOL are run in a standalone environment. COBOL programs can be easily moved to the Lisa and run as they would on other machines.

Items Included: COBOL Software (2 diskettes)  
COBOL User's Manual  
COBOL Reference Manual  
Workshop User's Manual

Equipment Required: Lisa Office System

## ***Product Fact Sheet***

Product Name: BASIC-Plus  
Apple Product No.: A6D0103  
Pricing: Suggested Retail Price - \$295.00

Product Name: BASIC-Plus Manuals  
Apple Product No.: A6L0112  
Pricing: Suggested Retail Price - \$45.00

Description: BASIC-Plus for the Lisa is functionally equivalent to the popular DEC BASIC-Plus product. BASIC-Plus programs can be entered line-by-line for fast debugging, or can be created as files and run as complete programs. Programs are executed interpretively. Full IEEE numerics (32-, 64-, and 80-bit precision) are supported. BASIC-Plus programs can use screen control for formatting output.

BASIC-Plus programs are developed and run in the Workshop, which provides a complete program development environment. The Workshop includes the command processor shell, the Mouse Editor, the EXEC file processor, system management utilities, file management utilities, and the source code transfer program, as well as other useful utility programs.

Markets and Applications: BASIC-Plus is a popular language that can be used by third-party software developers, national account customers, and individual users. Programs written in BASIC-Plus are run in a standalone environment. Programs can be easily moved to the Lisa and run as they would on other machines.

Items Included: BASIC-Plus Software (2 diskettes)  
BASIC-Plus User's Manual  
Workshop User's Manual

Equipment Required: Lisa Office System

## ***Product Fact Sheet***

Product Name: Pascal for the Lisa  
Apple Product No.: A6D0101  
Pricing: Suggested Retail Price - \$595.00

Product Name: Pascal Manuals  
Apple Product No.: A6L0111  
Pricing: Suggested Retail Price - \$95.00

Description: Pascal for the Lisa is an ISO Pascal with extensions, and is similar to A// and A/// Pascal (differences are documented in the Pascal manual). Pascal programs are compiled to native MC68000 code for efficient execution, and can be linked with assembly language routines. Pascal supports full IEEE numerics (32-, 64-, and 80-bit precision) and separate compilation. Standalone Pascal programs can output QuickDraw graphics and use mouse input. The Pascal product includes the code generator, MC68000 assembler, and linker.

Pascal programs are developed and run in the Workshop, which provides a complete program development environment. The Workshop includes the command processor shell, the Mouse Editor, the EXEC file processor, system management utilities, file management utilities, and the source code transfer program, as well as other useful utility programs.

Markets and Applications: Pascal is Apple's preferred language for program development, and is intended for third-party software developers, national account customers, and individual users. Programs written in Pascal are run in a standalone environment, and can be enhanced with graphics output and mouse control. This Pascal product and the Application Development Toolkit, which is a future product, will both be required for developing applications that are fully integrated with the Lisa Office System.

Items Included: Pascal Software (3 diskettes)  
Pascal Reference Manual  
Workshop User's Manual  
Operating System Manual  
MC68000 Manual

Equipment Required: Lisa Office System

## ***Product Fact Sheet***

**Product Name:** Fileware<sup>TM</sup>

**Apple Part Number:** A9D0001

**Pricing:** Suggested Retail Price: \$ 60.00 per box

**Packaging:** Fileware Diskettes (5 per box)

**Description:** Fileware diskettes are the only diskettes that should be used with Lisa. They each can provide up to 851 Kb (formatted) of information storage. Fileware diskettes are packaged five to the box and have labels which indicate the proper direction for insertion of the diskette into the Lisa drive.

These diskettes provide an exceptional amount of storage per diskette. This is because of the very high density with which information is saved on each diskette (62.5 tracks per inch and 10,000 bits per inch).

Fileware provides the primary vehicle for Lisa users to backup documents saved on their Profile and the only means for securing sensitive information by removing the media and placing it in an area providing safety and security.

These diskettes also provide for portability of information between Lisa systems. They are the only means at this point (Appletalk will also provide for this) of moving documents from Lisa to Lisa in order to share information or utilize another machine's peripherals (e.g., printers).

**Equipment Required:** Lisa Office System

# ***Product Fact Sheet***

Product Name: Apple Daisy Wheel Printer  
Apple DWP Accessory Kit for Lisa

Apple Product Number: A3M0025- Apple Daisy Wheel Printer  
A6C0351 - Lisa DWP Accessory Kit

Pricing: Suggested Retail Price:  
\$2195.00 -- Apple Daisy Wheel Printer and  
Accessory Kit for Lisa

Compatible With : Lisa Office System

## Description:

Apple's Daisy Wheel Printer, formerly called Apple Letter Quality Printer, is a high performance daisywheel printer that prints fully-formed characters in a variety of typestyles, producing documents of professional correspondence quality. Combining Apple designed firmware, character sets and printwheels, with outstanding performance characteristics, the DWP provides Apple users with maximum printer utility.

The Apple DWP Accessory Kit for the Lisa Office System is a companion product to the Apple Daisy Wheel Printer. It contains the accessory products which allow the end user to configure the DWP to the Lisa system. The Accessory Kit also allows dealers maximum DWP inventory control: they can stock one printer and one of each Accessory Kit and be ready for any system requirement.

## Markets and Applications:

The DWP provides the solution for Apple Personal Computer owners who require professional look for their printed documents. Approximately 15% of Apple buyers will buy the DWP for business correspondence applications (word processing), with an additional 3% using it for spread sheets, multi-part forms and business graphics.

## Printer Benefits:

- \*Improves quality and impact of letters and documents.
- \*Increases office productivity through reliable, letter perfect printing and graphics capabilities.
- \*Specially designed to interface with all existing and future Apple computers.
- \*Provides years of trouble-free operation because it's supported by Apple service and support network.

Accessory Kits Benefits:

The kits allow Apple Dealers to maintain a lower inventory of high cost printers and a higher inventory of low cost accessory kits in order to support the requirements of end users.

Printer Features:

- \*Pause control, operator convenience switches, easy, quick-loading ribbons and printwheels, quiet, clean operation.
- \*40 cps print speed, bi-directional printing, and seven character sets.
- \*130-character "daisy" printwheels in various alphanumeric type styles. One spoke for each character, which eliminates shifting the carriage up and down, a major cause of wear and character misalignment.
- \*Special mode commands, graphics mode, forward and backward print mode, program mode for hammer intensity and ribbon movement.
- \*Various character spacing, 10, 12 and 15 characters per inch, plus proportional spacing.
- \*Clean handling snap-in cartridge ribbon.
- \*Handles a variety of paper weights and up to six part standard forms.
- \*Rated 3000 hours MTBF (mean time between failure).

Items Included

- Apple Daisy Wheel Printer:
  - Power Cord
  - Printwheel
  - Ribbon
- Apple Accessory Kits:
  - Installation Manual
  - Unpacking Instructions
  - Printer Warranty and Product Registration Card

Equipment Required: Lisa Office System

Procedural Notes:

1. Apple Letter Quality Printers were renamed Apple Daisy Wheel Printers, effective April 28, 1983.

# ***Product Fact Sheet***

Product Name: Apple Dot Matrix Printer  
Apple DMP Accessory Kit for Lisa

Apple Product Number: A2M0058 - Dot Matrix Printer  
A6C0350 - Lisa DMP Accessory Kit

Pricing: Suggested Retail Price:  
\$675.00 -- Dot Matrix Printer and  
Accessory Kit for Lisa

Compatible With : Lisa Office System

## Description:

The Apple Dot Matrix Printer (DMP) is a highly reliable multi-mode printer capable of either high speed text or high resolution graphics printing. It is engineered to complement Apple Computer systems in every way, from plug compatibility to physical appearance. The DMP uses a 7 x 9 pin matrix with a 100 million-plus character head life to create text of near letter quality and superb graphics. It prints on cut sheets, roll stock or sprocket-fed continuous forms.

The Apple DMP Accessory Kit for the Lisa Office System is a companion product to the Apple Dot Matrix Printer. It contains the accessory products (with the exception of an interface card) which allow the end user to configure the DMP to the Lisa system. The Accessory Kit also allows dealers maximum DMP inventory control: they can stock one printer and one of each Accessory Kit and be ready for any system requirement.

## Markets and Applications:

The Apple Dot Matrix Printer is for any customer thinking of buying a dot matrix printer for the Lisa Office System. The performance of the DMP exceeds any comparable product now in the market; it is priced competitively, and it is totally supported and serviced by Apple.

## Printer Features:

-Prints up to 120 characters per second in text mode, using bidirectional logic-seeking.

-Prints up to 160 x 144 dots per inch in graphics mode and is capable of mixing text and graphics on the same line.

-Plug compatible with any Apple. Appearance complements Apple line. Uses Apple ribbons.

-Unique Apple character sets supporting 7 languages and 7 typestyles including expanded, condensed and proportional variations.

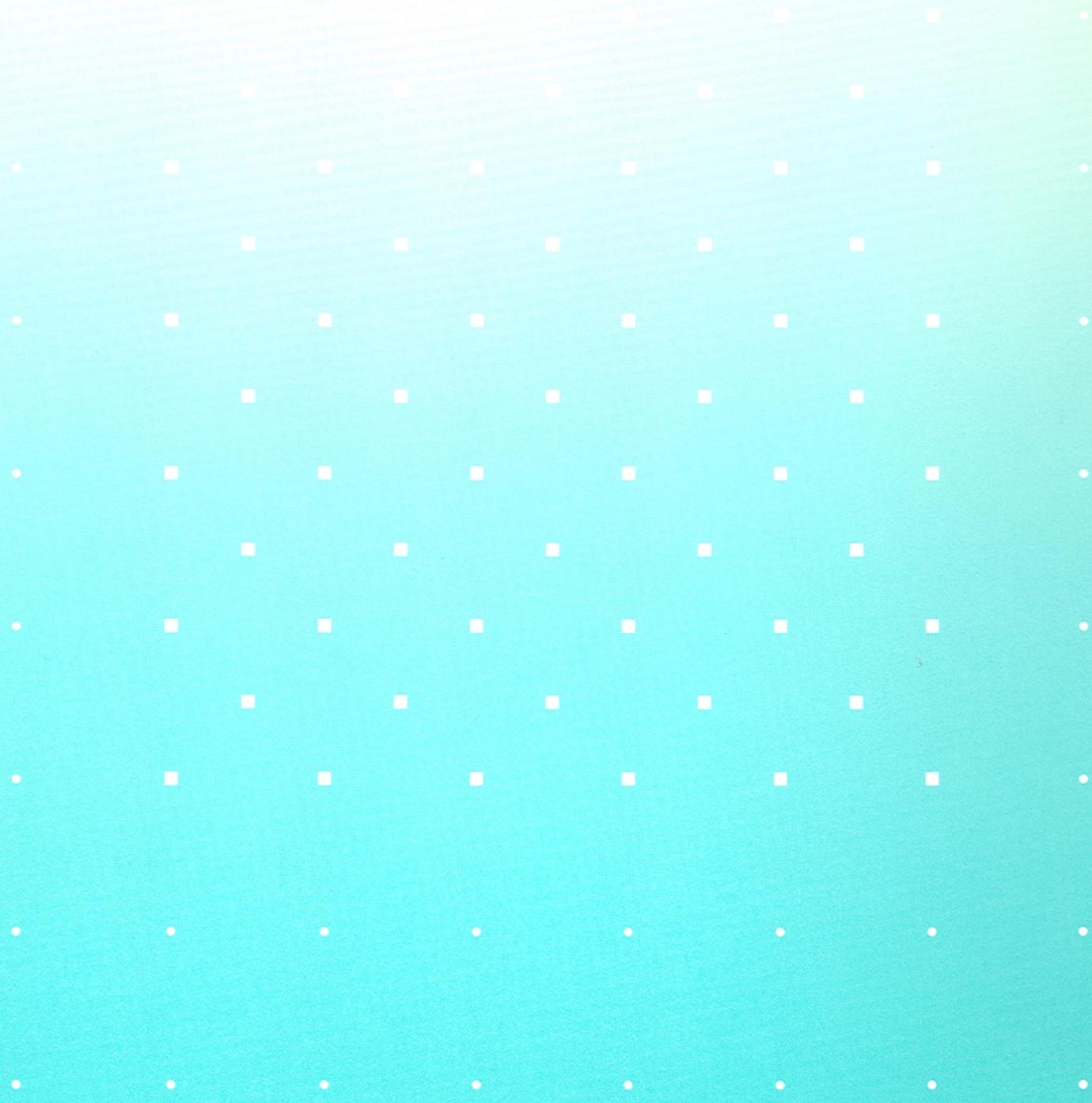
Items Included:

Apple Dot Matrix Printer  
-Apple Dot Matrix Printer  
-Power Cord  
-Ribbon

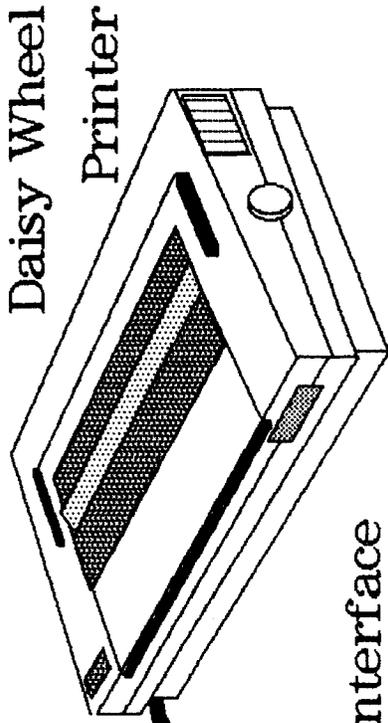
Apple Accessory Kits  
-Installation Manual  
-Printer Warranty and Product Registration Card  
-Cable/Parallel Interface Assembly  
-Unpacking Instructions

Equipment Required:

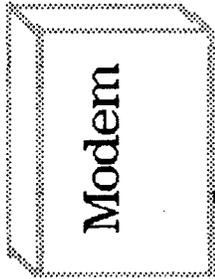
Lisa Office System  
Parallel Interface Card (A6BB101)



External Devices

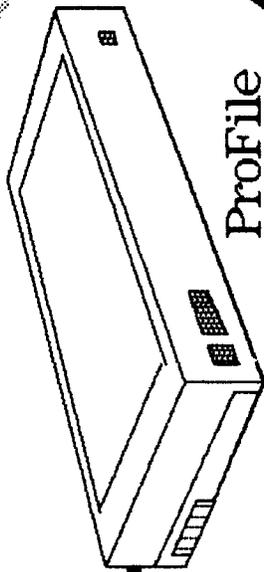


Daisy Wheel  
Printer



Modem

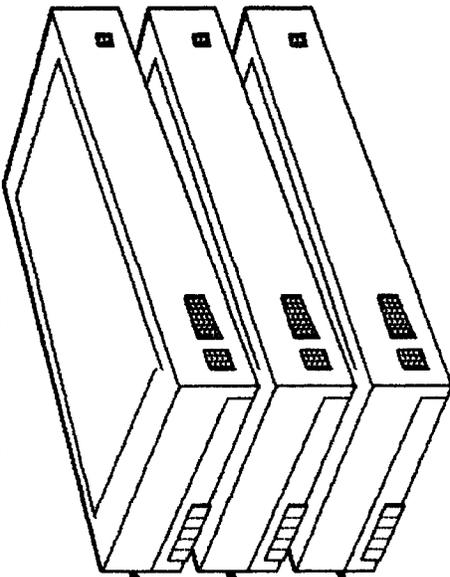
Standard  
Configuration



Profile

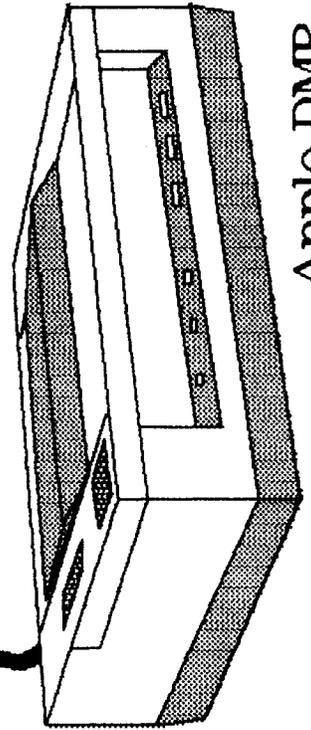
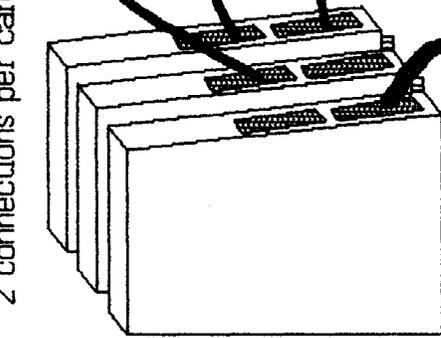
Parallel Interface  
Card(s)

2 connections per card



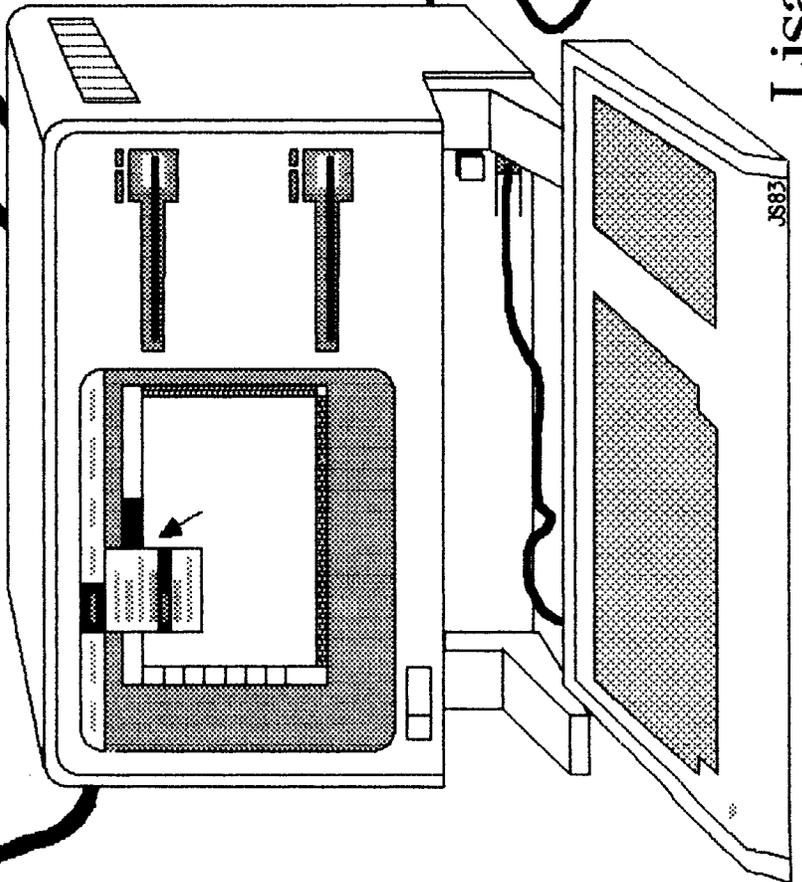
Additional Profiles

2 connections per card



Apple DMP

Lisa System



Parallel

The page features a grid of 10 columns and 10 rows of small, light-colored geometric shapes on a teal background. The shapes are arranged in a regular pattern, with each row containing 10 shapes and each column containing 10 shapes. The shapes are small squares and circles, alternating in a grid-like fashion. The top portion of the page is white, and the teal background covers the majority of the page area.

## IBM

### A. Company Overview: About IBM

IBM, also known in the trade as Big Blue, is the eighth largest American industrial corporation. With an estimated 1982 sales revenue of \$32 billion and a net income of \$3.5 billion, IBM dwarfs every competitor in the information processing industry. Its financial position is also very enviable--low debt and high liquidity puts IBM in an extremely solid financial position. IBM's primary market is the Fortune 1000 companies, where it controls 65-70% market share of installed mainframes. In 1981, IBM invested \$1.5 billion in research and development, more than any other American corporation except for GM and Ford.

IBM's strategy for the 1980s emphasizes four areas:

Low-cost production: Since 1977, IBM has invested over \$4 billion in automating plants and equipment, and there are no signs of that trend reversing. The company intends to be "price competitive on a box-for-box basis."

Low-cost distribution: The goal is to make the distribution costs become one of the lowest in each product category. Thus, IBM is experimenting with a broad range of distribution channels, attempting to fine tune its product distribution channels.

Organizational structure: IBM is reorganizing itself to better compete in each market segment. For instance, the company has consolidated all marketing into one group where all salespeople will, in theory, be able to sell all IBM products.

High-growth markets: IBM intends to be a major player in virtually every new growth area of the computer business, including the personal computer marketplace.

### B. Market Overview: IBM's Strategy in the Personal Computer Market

IBM recognized that the personal computer market would explode in the early 80s. Thus, it put together a product, the IBM PC, which allowed IBM to enter the market and establish a strong presence. In order to bypass the normally long development cycles, the IBM PC was assembled from outside sources--only the keyboard is made by IBM.

In keeping with its overall corporate strategy, IBM wants to...

1. Become one of the low-cost producers of personal computers. By ramping up manufacturing facilities and achieving widespread penetration of the PC and XT, IBM hopes to gain in the economy of scale in purchasing, manufacturing, and distribution.
2. Capitalize on its strong presence in the Fortune 1000 marketplace. IBM's direct sales force is a potent weapon in this segment. IBM knows how to sell to large corporate customers.
3. Establish the image that IBM is the computer company, whether in mainframes, minis, or micros. IBM is putting together programs to address market segments other than large- and medium-scale businesses.

4. Develop a customer base for the future by targeting students, educators, and very small businesses.

#### C. Product Overview: The IBM Personal Computer XT

On March 8, 1983, IBM introduced its Personal Computer XT. The XT is a repackaged Personal Computer, not a new machine. It bundles a 10-megabyte hard disk with a PC at an aggressive price. The XT is fully hardware and software compatible with the IBM Personal Computer (PC).

At \$4,995, the Personal Computer XT includes:

- . 8088 microprocessor,
- . 128K RAM standard,
- . 10-MB hard disk,
- . IBM PC keyboard,
- . 40K ROM,
- . One 360K floppy disk drive,
- . Async communications board, and
- . Eight expansion slots.

The XT bundle does not include a monitor. A black-and-white monitor with monitor/printer card is an additional \$680. The standard XT configuration consumes four of the eight expansion slots (two drive controllers, one communications board, and one monitor/printer card).

The XT packaging is almost the same as the Personal Computer. It uses the same system box and monitor. Instead of having two floppy disk drives integrated into the main unit, one is a hard disk and the other, a floppy. IBM has put 129K RAM on the XT motherboard. There are sockets for an additional 128K. The use of three 128K RAM expansion boards permits a total of 640K RAM. The BASIC language interpreter is stored in ROM. The asynchronous communications board provides one RS232-C port.

IBM has provided an expansion unit (\$2,695) with an additional 10MB hard disk and a net of six more uncommitted expansion slots. When added, the original hard disk must be moved to this box. A second floppy disk or a blank replaces the removed disk in the original box. No floppy disk can be put in the expansion unit.

#### D. Product Comparison: Lisa vs IBM XT

##### Lisa's advantages over the XT

1. Vastly superior user interface, through Graphics Mouse Technology.
2. Shorter time to learn software applications.
3. Much better software integration.
4. Superior hardware: memory capacity, CPU, diskette capacity, I/O ports, bit-mapped display, and more.
5. Superior printing output quality.
6. Innovative software: there's no equivalent software to LisaDraw or LisaProject on the XT.

## XT's advantages over Lisa

1. XT has a wider range of software.
2. XT can support color monitors or plotters.
3. XT has more data communications capabilities.
4. XT is perceived as a less expensive system.
5. XT software has features that are not available in corresponding Lisa software (LisaWrite, LisaCalc, LisaList, and LisaGraph).
6. XT has a bundled 10MB hard disk.

## E. Distribution

To achieve low-cost distribution, IBM's distribution strategy includes...

1. Controlling its expansion of distribution channels.
2. Utilizing its huge direct sales force.
3. Creating and maintaining a high-quality dealer network.
4. Exploring other distribution channels.

So far, IBM has been very careful in selecting its retail distribution channels. It has initially placed emphasis on its direct sales force as the primary sales channel for the PC/XT.

## F. Service and Support

Customer service is and will be the key to IBM's success. However, IBM has not yet successfully implemented a strong service program for its PC/XT. IBM's short-term plan seems to rely on dealers for customer service. The long-term goal is to develop a strong service network through the IBM Product Centers, in competition with dealers. IBM plans to generate revenue and profits from its service operations.

Presently, IBM offers three service agreements for the PC/XT, all of which fall under the Annual Option service plan. A customer that signs up under the Annual Option plan gets a full year service coverage beyond the 90-day warranty, and the plan is renewable. The three service agreements available with the Annual Option plan are:

1. Pick-Up/Delivery: IBM arranges to pick up the customer's failing component and also deliver a replacement component. A Warranty Extension Option, available under this arrangement, offers a lower-cost, but non-renewable, service for nine months beyond the 90-day warranty period.
2. Carry-In: Customer delivers the failing component to the service center and later picks up the fixed component.
3. Mail-In: Customer mails the failing component to the service center and gets a replacement component in the mail.

Like most established computer vendors entering the personal computer market, IBM does not extend many of its established support capabilities to its PC/XT customers. For instance, PC/XT users do not have access to the IBM worldwide Support/Diagnostic Center which addresses software bug and operation questions. IBM does have a smaller technical group (consisting of four staff members) which answers dealer and end-user questions over the telephone. The general response, however, has been that the current resources are inadequate to deliver the speed and caliber of support most customers assumed as available from the industry giant.

IBM XT vs Lisa  
Feature Comparison

<u>Feature</u>	<u>IBM XT</u>	<u>Lisa</u>
CPU	8088	MC68000
Data Path/Address Path	8/16	16/32
Clock Rate	5 MHz	5 MHz
Standard Memory	128K	1000K
Minimum Memory	128K	1000K
Maximum Memory	640K	1000K
Memory Management	no	yes
Standard Diskette Storage	1 360K floppy	2 860K floppies
Optional Diskette Storage	360K floppy	none
Maximum Diskettes per System	2	2
Standard Hard Disk	10 MB	5 MB
I/O Ports		
Parallel	none	1 (standard)
Serial (RS-232C)	optional	2 (standard)
Expansion Slots	8	3
Monochrome Display	standard	standard
Type of Display	character (std)	bit-mapped (std)
Resolution: Graphics Mode	200 x 640	364 x 760
Display Size (diagonal)	11.5 inch	12 inch
Color Display	optional	none
Type of Keyboard	detachable	detachable
Number of Keys	83	73
Keypad	10-key	18-key
Printers Supported	Epson MX-80	Apple Dot Matrix Apple Daisy Wheel
Dot Matrix Printer Speed	80 cps	120 cps (draft)
Operating System	DOS 2.0	Lisa OS
Type of Operating System	Single-Tasking	Multi-Tasking
Data Communications	TTY, 3101 Async, 3270 SNA (1983) 3770 SNA (1983)	TTY, VT52, VT100, 3270 SNA (1983) 3270 BSC (1983)
Languages	Basic, Pascal, COBOL, Assembler Fortran	Basic-Plus, Pascal, COBOL

## VisiOn Comparison Summary

In comparing the Lisa with VisiOn on the IBM XT, we find that in the solutions area, VisiOn offers nothing like LisaDraw or LisaProject. Apple also offers LisaTerminal and VisiOn has nothing close to that. When one looks at the Lisa technology, we discover that the VisiOn user interface is nothing near the quality or sophistication of the Lisa user interface.

With VisiOn, you deal with files in the same way conventional computers have dealt with them for years. There's no concept of folders, no features in the quality of printing output or visual fidelity. In the area of performance, the Lisa is about ten times faster, offers twice the memory, twice the screen resolution, and 2-1/2 times the floppy disk capacity. Looking at the two products, Lisa and VisiOn, one has to conclude that the Lisa is substantially superior.

Furthermore, the Lisa is not substantially more expensive than an IBM XT equipped with VisiOn. In order to run VisiOn on the XT, you'll need at least a 512K system, a floppy disk drive, a hard disk, Async communications, and a mouse. Hardware alone costs around \$7,600. Projected software prices take the total system price to just under \$10,000.

So, the Lisa is substantially superior to VisiOn, at the same price. There really is no machine in the marketplace that really competes with the Lisa. It stands alone at the high-end by providing a functional, easy-to-use product.

### Price Comparison

#### IBM XT with VisiOn

##### Hardware

System unit (128K, 1 360K floppy, 10MB hard disk, async adapter, 2 disk controllers, keyboard)	\$4,995
Memory upgrade to 512K	1,045
Graphics display	645
Graphics/color adapter	244
Printer adapter	150
Mouse	500
Total Hardware Costs .....	\$7,579

##### Software

DOS 2.0	\$ 60
VisiCalc (advanced)	400
VisiWord	375
VisiFile	250
VisiPlot	250
VisiSchedule	270
VisiOn	750
Total Software Costs .....	\$2,355

Total Price ..... \$9,934

## DEC

### A. Company Overview: About DEC

Digital Equipment Corporation (DEC) sells, services, and supports a wide range of machines: large DEC-Systems, medium-sized VAX, mini PDP 11/7, and personal computers, such as the Professional 350 and 325, DECmate II, and the Rainbow 100. DEC's targeted audience is in the professional, personal computing, office automation, and small business markets.

The estimated 1982 sales revenues is \$3.9 billion, with a net income of \$417 million, and about \$700 million in the bank. DEC is investing heavily in research and development as well as service and support capability. Although growth rates of operating revenues and net income decreased in 1982 over 1981, research and development spending has increased by 39%. It is also interesting to note that service and support accounts for 28% of DEC's revenues.

DEC is also trying to position itself as a leader in mass storage devices. Interestingly, problems with their dual drive floppy have been largely responsible for the slip in releasing their personal computers.

### B. Market Overview: About DEC's Strategy in the Personal Computer Market

There are four key elements to DEC's strategy in the personal computer market:

1. Provide a range of machines which are oriented for different markets.
  - The PC300 family (the 350 and the 325) for professionals who demand the "next generation software."
  - The DECmate for meeting the needs of either the word processing or the small business market.
  - The Rainbow 100 for the staff assistant who needs MultiPlan and dBase II.
2. Leverage off existing or third-party software when possible.
  - For the Professional 350 and 325, 3rd party developed software.
  - For the DECmate II, WPS, COS, and optionally, CP/M software.
  - For the Rainbow 100, CP/M software.
3. Leverage off DEC's well-known service and support capabilities.
4. Provide a wide range of European keyboards.

C. Product Overview: The PC300 series, the DECmate II, and the Rainbow 100

DEC has introduced three different families of personal computers:

1. The Rainbow 100
2. The DECmate II
3. The PC300 series (the Professional 325 and 350)

The Rainbow 100

The Rainbow 100 is DEC's contribution to the CP/M marketplace. It is positioned as a high performance personal computer that will run a wide selection of low-cost CP/M-based software. The Rainbow will probably compete in the same market as the IBM PC, that is, large corporate accounts who want to buy a CP/M machine which is backed by a large service and support organization. The Rainbow's hardware configuration includes:

- Z80A/8088 processors
- 64K memory (expandable to 256K)
- CP/M80, CP/M86, and MS-DOS supported
- 2 400K disk drives (standard)
- 5 MB Winchester hard disk and additional drives (optional)
- Detachable keyboard
- Screen

The price for a Rainbow ranges from \$4495 for a 64K system with a dot matrix printer to \$9090 for a 256K system with a dot matrix printer and a 5 MB Winchester disk drive.

The DECmate II

The DECmate II is an enhanced version of the popular DECmate I. It is positioned as a small business machine for offices which need both word processing and small business applications. Hence, the DECmate II supports a full range of word processing and accounting software. This targeted market is completely different from Lisa's targeted market. The DECmate's configuration includes:

- 6020 (PDP 8) 12-bit processor, with optional Z80
- 96K memory (standard and maximum)
- 2 400K disk drives (standard)
- 5 MB Winchester hard disk and additional drives (optional)
- WPS-8, COS310, and CP/M supported
- Runs DEC's WPS software as well as CP/M applications

The price for the DECmate II ranges from \$4650 for a 96K system with a dot matrix printer to \$8350 for a 96K system with a dot matrix printer and a 5 MB Winchester disk.

## The PC300 Series

The PC300 family makes up DEC's top of the line personal computers and is intended to compete in the same market as Lisa. The PC300 family is made up of two models: the Professional 325 and the Professional 350. DEC is positioning the PC300 family as the hardware basis for a new generation of personal computer software. This new generation of software is to be characterized by ease of use, and it is aimed at professionals who do not have the time it takes to learn the current software.

The Professional 325 and the 350 are identical except that the 325 has fewer expansion slots and cannot support additional disk storage. The Professional 325 is targeted toward either users who are unlikely to place heavy demands on their systems, or users in a network environment. However, neither system currently runs on a network. The PC300 family has the following configuration:

- 256K memory (standard and maximum)
- PDP 11/23 16-bit processor
- Bit-mapped screen (240 x 960) with color option
- P/OS, a multi-tasking operating system which is a derivative of RSX-11M
- Detachable keyboard
- 2 built-in 400K disk drives (standard)
- 5 MB Winchester (option on the Professional 350)
- Telephone Management System (optional)

The price for the PC300 series ranges from \$4945 for a 256K Professional 325 with a dot matrix printer to \$9445 for a 256K Professional 350 with a dot matrix printer and a 5 MB Winchester disk. Color monitor option is available for an additional \$2220.

### D. Product Comparison: Lisa vs DEC PC300 Series

#### PC300 Series' weaknesses relative to Lisa

1. Maximum memory of 256K. This restriction on memory size limits the power of the applications which can be put on the system.
2. Less powerful processor. The PDP architecture (a late 60's technology) is not nearly as advanced as the MC68000. From the user's standpoint, these advantages mean more powerful, larger, and faster applications on Lisa than on the PC300s.
3. Less external storage. On the Professional 350, the user is limited to only one additional 5 MB disk; on the Professional 325, the user doesn't have the option of expanding disk storage.
4. Poor quality and range of software offered for the PC300. The much-publicized ease-of-use features of the PC300s appear limited to menu screens, special function keys, and help screens.

### PC300 series' advantages over Lisa

1. The color monitor option. Although this option is expensive (\$2220), it is a distinguishing and sexy difference between the PC300s and Lisa.
2. The Telephone Management System. Although the system is currently limited to routine telephone chores (such as automatic lookup and auto-dial of telephone numbers), the hardware has been designed to eventually support voice storage and forwarding, voice mail, and voice annotations of documents.
3. Wider variety of keyboards and character sets.
4. Acts as terminal to office software (ALL-in-one) running on the VAX family of Minicomputers.

### Lisa's advantages over the PC300 series

1. Lisa's software applications are truly revolutionary in its ease of use, integration, power (e.g., maximum size of a LisaCalc model), range of applications available, unique printing capabilities, and are available immediately.
2. Lisa's terminal emulators (VT100 and the 3270 emulators) equal the PC300's communications capabilities.
3. Lisa's hardware is much more powerful than DEC's systems.

### E. Distribution

Customer loyalty among DEC customers is unparalleled by any major vendor. DEC's sales channels are through direct sales to large accounts, OEMs, its 214 DEC-owned sales offices, and some limited dealer activity. DEC gets 36% of their sales from outside the U.S.

### F. Service and Support

DEC has a large and mature service and support organization, with presence in 39 countries. They provide a wide variety of service options: carry-in to sales office, on-site service, and mail-in. DEC also provides a "help line" to answer questions regarding hardware, software, training, supplies, and service. Ninety days of this "help line" is bundled in the system warranty.

A wide variety of training courses are offered in 24 world-wide training centers in 17 languages. DEC also offers in-house training and training kits.

DEC Professional 350 vs Lisa  
Feature Comparison

<u>Feature</u>	<u>Professional 350</u>	<u>Lisa</u>
CPU	F-11 (PDP 11/23)	MC68000
Data Path/Address Path	16/16	16/32
Standard Memory	256K	1000K
Minimum Memory	256K	1000K
Maximum Memory	256K	1000K
Memory Management	no	yes
Standard Diskette Storage	2 400K floppies	2 860K floppies
Maximum Diskettes per System	2	2
Standard Hard Disk	none	5 MB
Optional Hard Disk	5 MB	up to 6 additional 5 MB hard disks
I/O Ports		
Parallel	none	1 (standard)
Serial (RS-232C)	2 (standard)	2 (standard)
Expansion Slots	4	3
Monochrome Display	standard	standard
Type of Display	bit-mapped (std)	bit-mapped (std)
Resolution: Graphics Mode	240 x 960	364 x 760
Display Size (diagonal)		12 inch
Color Display	optional	none
Type of Keyboard	detachable	detachable
Number of Keys	139	73
Keypad	18-key	18-key
Printers Supported	DEC LA50 (DMP) DEC LQP02 (DWP)	Apple Dot Matrix Apple Daisy Wheel
Dot Matrix Printer Speed	50 cps	120 cps (draft)
Operating System	P/OS	Lisa OS
Type of Operating System	Multi-Tasking	Multi-Tasking
Data Communications		TTY, VT52, VT100, 3270 SNA (1983) 3270 BSC (1983)
Languages		BASIC-Plus, Pascal, COBOL
Telephone Management	auto-dial connect 2 phone lines conference calling	none

DEC Professional 325 vs Lisa  
Feature Comparison

<u>Feature</u>	<u>Professional 325</u>	<u>Lisa</u>
CPU	F-11 (PDP 11/23)	MC68000
Data Path/Address Path	16/16	16/32
Standard Memory	256K	1000K
Minimum Memory	256K	1000K
Maximum Memory	256K	1000K
Memory Management [vague]	no [???	yes
Standard Diskette Storage	2 400K floppies	2 860K floppies
Maximum Diskettes per System	2	2
Standard Hard Disk	none	5 MB
I/O Ports		
Parallel	none	1 (standard)
Serial (RS-232C)	2 (standard)	2 (standard)
Expansion Slots	1	3
Monochrome Display	standard	standard
Type of Display	bit-mapped (std)	bit-mapped (std)
Resolution: Graphics Mode	240 x 960	364 x 760
Display Size (diagonal)		12 inch
Color Display	optional	none
Type of Keyboard	detachable	detachable
Number of Keys	139	73
Keypad	18-key	18-key
Printers Supported	DEC LA50 (DMP) DEC LQP02 (DWP)	Apple Dot Matrix Apple Daisy Wheel
Dot Matrix Printer Speed	50 cps	120 cps (draft)
Operating System	P/OS	Lisa OS
Type of Operating System	Multi-Tasking	Multi-Tasking
Data Communications		TTY, VT52, VT100, 3270 SNA (1983) 3270 BSC (1983)
Languages		BASIC-Plus, Pascal, COBOL
Telephone Management	auto-dial connect 2 phone lines conference calling	none

## Corvus Systems

### A. Company Overview: About Corvus Systems

Corvus Systems started about three years ago as a supplier of Winchester hard disks for Apple II systems. Headquartered in San Jose, Corvus Systems will have an estimated 1982 sales revenue of \$24 million and a net income of \$2 million.

The major products manufactured by Corvus Systems are the Omninet and the Concept a personal computer introduced in May 1982. To date, total sales of the Concept are less than \$2 million, or less than 10% of Corvus Systems' annual sales. However, Corvus claims a 70% market share of Winchester disk systems for microcomputers and a 50% market share of local area networks using their Multiplexer and Omnet systems.

### B. Market Overview: Corvus' Strategy in the Personal Computer Market

With the Concept, Corvus strives to provide the office market with a personal computer which can also be networked. The targeted markets for the Concept are the office professional and middle management segments. Thus, the targeted audience include the Fortune 500 and 1000 businesses and education, particularly in computer-aided instruction. Corvus' business has been primarily domestic; only recently has Corvus signed with European sales agencies and distributors to market their product lines.

### C. Product Overview: The Corvus Concept

Although the Concept can be considered a personal computer, Corvus has been positioning the Concept as a network workstation. In this way, Corvus can use their experience and large market share of local area networks to help promote the Concept. Built into the Concept is an Omnet interface and the Concept's operating system (a modified version of Unix), making the Concept well-suited for network applications. An Omnet can support up to 64 Concepts within a 4000-ft network. Both Winchester hard disks and 8" floppies can be added to the Concept, and hard disk backup is available through a video tape recorder (VTR) device known as the Mirror.

The Concept's standard hardware configuration includes:

- 16-bit Motorola 68000 CPU
- 256K standard memory (expandable to 512K)
- Built-in Omninet interface with discrete microprocessor (allowing CSMA network capability)
- 15-inch CRT display which can be oriented either horizontally (landscaped) or vertically (portrait). Image is bit-mapped at 720 x 560, white on black or black on white.
- Detachable selectric-style keyboard with 10-key numeric pad and 10 function keys
- 2 RS-232C ports
- Built-in calendar/clock with battery back-up
- Mass storage: optional 8-inch floppy disks, 6, 10, or 20-MB hard disks
- Printers supported: Epson MX dot matrix and NEC Spinwriter letter quality

The Concept's software applications include:

- Proprietary operating system with multiple "windows" possible on the screen.
- EdWord: a Corvus-made word processor with cut and paste, templates, and undo/redo features.
- LogiCalc: a Software Products spreadsheet which allows 13 columns on a single display and independent column widths.
- CP/M access provided through software emulation by a CP/M card included with the system. This allows the Concept to use many business software packages that are CP/M-based. (Product announced in June 1982; not yet released.)

Pricing:

Network workstation unit (256K Concept with no mass storage):	\$5000
Additional 256K RAM (memory upgrade only):	\$1000
Single 8" floppy disk:	\$1500
Hard disks (required by the Concept):	
6 MB (with interface)	\$3000
11 MB (with interface)	\$4800
20 MB (with interface)	\$5800
Mirror back-up system:	\$800
Printer server (needed to support Epson MX 80 dot matrix):	\$600
File server (needed to add hard disk to the Omninet):	\$1000
EdWord:	\$500
LogiCalc:	\$250
CP/M card: \$300 (not available yet)	

D. Product Comparison: Lisa vs Corvus Concept

Concept's weaknesses when compared with Lisa

1. Ordinary user interface
2. Lack of graphics and data communications software
3. Limited software
4. Maximum expandable memory of 512K
5. No terminal emulation
6. Lack of service and support

When positioned against Lisa, the Concept does not provide much competition.

E. Distribution Information to be provided at a later date.

F. Service and Support Information to be provided at a later date.

Corvus Concept vs Lisa  
Feature Comparison

<u>Feature</u>	<u>Concept</u>	<u>Lisa</u>
CPU	MC68000	MC68000
Data Path/Address Path	16/32	16/32
Clock Rate	5 MHz	5 MHz
Standard Memory	256K	1000K
Minimum Memory	256K	1000K
Maximum Memory	512K	1000K
Memory Management	no	yes
Standard Diskette Storage	none	2 860K floppies
Optional Diskette Storage	8" floppy disks	none
Maximum Diskettes per System	2	2
Standard Hard Disk	none	5 MB
Optional Hard Disk	6, 11, or 20 MB	up to 6 additional 5-MB hard disks
I/O Ports		
Parallel	none	1 (standard)
Serial (RS-232C)	2 (standard)	2 (standard)
Expansion Slots	none	3
Monochrome Display	standard	standard
Type of Display	bit-mapped (std)	bit-mapped (std)
Resolution: Graphics Mode	720 x 560	364 x 760
Display Size (diagonal)	15 inch	12 inch
Color Display	none	none
Type of Keyboard	detachable	detachable
Number of Keys	83	73
Keypad	10-key	18-key
Printers Supported	Epson MX-80 NEC Spinwriter	Apple Dot Matrix Apple Daisy Wheel
Dot Matrix Printer Speed	80 cps	120 cps (draft)
Operating System	Concept OS	Lisa OS
Type of Operating System	Multi-Tasking	Multi-Tasking
Data Communications		TTY, VT52, VT100, 3270 SNA (1983) 3270 BSC (1983)
Languages		Basic-Plus, Pascal, COBOL

## Fortune Systems

### A. Company Overview: About Fortune Systems

Located in San Carlos, Fortune Systems was founded in January 1981 by three former Intel Corporation employees. Fortune Systems is backed by \$19 million in venture capital and a \$6.5 million line of credit. The Fortune 32:16 system, the company's only product so far, was announced in November 1981. As of December 1, 1982, Info Corp. reports that Fortune is manufacturing seventy machines per working day.

### B. Market Overview: Fortune System's Strategy in the Personal Computer Market

Fortune Systems has promised two basic versions of its Fortune 32:16 computer: a floppy disk-based system and a hard disk-based system. As of December 1, 1982, Fortune is just beginning to deliver hard disk-based systems. Fortune dealers quote a delivery date of two to five weeks on the hard disk systems, and they refuse to discuss a delivery date for the floppy based systems. It is probable that Fortune will not deliver its floppy based system in the next ten months.

### C. Product Overview: The Fortune 32:16 System

The hard disk based system has a base price of \$8990 and includes:

- Fortune 32:16 system (MC68000 CPU)
- 256K main memory (expandable to 1 MB)
- One 720K disk drive
- 5 MB hard disk
- 12" monitor (character display only, 24 lines by 80 columns)
- Fortune Operating System (Xenix or a variant)

For \$9990, the buyer gets the above system with a 10 MB hard disk. Fortune dealers strongly recommend the 10 MB hard disk to make the system "usable".

The three main software applications available for the Fortune are priced as follows:

For:Word (superset of Wang WP)	\$495
Data base system (IDOL)	\$595
MultiPlan	\$295

The costs for adding terminals to a Fortune 32:16 single user are still not known, since the final system is still not on the market. The minimum upgrade costs appear to be:

Upgrade from single user to two users:	\$1700
Upgrade for each additional user after two users:	\$1200
Memory upgrade (for each 256K):	\$1500

D. Product Comparison: Lisa vs Fortune 32:16

Lisa's advantages over the Fortune 32:16

1. Six fully-integrated applications with very simple interface
2. Graphics mouse technology
3. Two built-in 860K floppy disk drives
4. 1 MB main memory (standard)

The Fortune hard disk system is not a strong competitor for Lisa in the single user professional office. If Fortune does deliver a floppy-based system, then Fortune will be offering a less advanced system at a cheaper price. This may affect Lisa's targeted market, for some of that market would chose the Fortune for its cheaper price coupled with its ability to upgrade.

E. Distribution

Fortune distributes its product mainly through retail dealers. Dealers volume discounts can be as high as 40% on the hardware and 50% on the software. The dealers also gets a 20% commission on service contracts.

The Fortune National Accounts Program allows very small discounts. A 5% discount is given for the purchase of 50 to 249 machines per year, and the discount increases up to 20% for the purchase of over 1000 machines per year. However, these discounts are very small compared to the dealer's 40% discount for large sales.

F. Service and Support

Information to be provided at a later date.

Fortune 32:16 vs Lisa  
Feature Comparison

<u>Feature</u>	<u>Fortune 32:16 Hard disk system</u>	<u>Lisa</u>
CPU	MC68000	MC68000
Data Path/Address Path	16/32	16/32
Clock Rate	5 MHz	5 MHz
Standard Memory	128K	1000K
Minimum Memory	128K	1000K
Maximum Memory	1000K	1000K
Memory Management	no	yes
Standard Diskette Storage	1 800K floppy	2 860K floppies
Maximum Diskettes per System	4	2
Standard Hard Disk	none	5 MB
Optional Hard Disk	5, 10 or 20 MB	up to 6 additional 5 MB hard disks
I/O Ports		
Parallel	none	1 (standard)
Serial (RS-232C)	1	2 (standard)
Expansion Slots	5	3
Monochrome Display	standard	standard
Type of Display	character (std)	bit-mapped (std)
Resolution: Graphics Mode	640 x 480	364 x 760
Display Size (diagonal)	12 inch	12 inch
Color Display	optional	none
Type of Keyboard	detachable	detachable
Number of Keys	99	73
Keypad	15-key	18-key
Printers Supported	Centronics	Apple Dot Matrix Apple Daisy Wheel
Dot Matrix Printer Speed		120 cps (draft)
Operating System	Xenix (or variant)	Lisa OS
Type of Operating System	Multi-User	Multi-Tasking
Data Communications	Asynch CU, UUCP Bisynch 3274	TTY, VT52, VT100, 3270 SNA (1983) 3270 BSC (1983)
Languages	BASIC, COBOL, For- tran 77, Pascal,	BASIC-Plus, Pascal, COBOL

## Xerox

### A. Company Overview: About Xerox

Xerox Corporation is a large, financially strong company (\$8.7 billion in 1981 revenues) with substantial interests in businesses which directly compete with Apple. While 80% of their revenues derived from the copier business, Xerox has targeted the office information market as the key priority for future growth. Xerox plans to achieve this goal by maintaining and strengthening their position of leadership in reprographics, and emerge from the 1980's as a leading company that is a major factor in automating the office.

### B. Market Overview: Xerox's Strategy in the Personal Computer Market

While Xerox is primarily known for its market presence in the copier market, they have also diversified into the area of office systems. Additionally, Xerox is vertically integrated in a number of areas through their Printing Systems Division for high-speed laser printers and their subsidiaries:

Century Data Systems (Winchester disk drives)  
Diablo Systems (Daisy wheel printers)  
Shuggart Associates (Floppy disk drives)

Xerox is committed to the office information market as the thrust of their growth in the 1980s. To achieve this goal, Xerox is investing heavily in Research and Development.

Xerox has made great strides toward providing the office market with a "total solution" to their systems needs, in addition to addressing the copier business. Their Ethernet local area network, while meeting some resistance in the marketplace, has made progress toward becoming a standard for high-speed, baseband network communications. Ethernet provides the communication and interaction between Xerox office system products, which are essential elements in addressing the total needs of the office.

While the Xerox line of low-cost electronic typewriters are stand alone products which do not support Ethernet, the remaining majority of Xerox office system products do interface with Ethernet and support communications between each other with varying degrees of functionality. These products include:

- . 820-II Personal Computer
- . 860 Information Processing System (primarily a word processor)
- . 8010 Star Information System

While Xerox has developed a strong presence in the office market through its traditional copier business, their office systems have met with mixed success in the office. Some reasons might include:

- . Their direct sales force is not as experienced in selling an office system type of product.
- . The Ethernet local area network has not developed as quickly into the standard that Xerox has desired at this point. Technically, it is being challenged by broadband networks, an alternative technology.
- . The high entry price and poor performance of the Star system, Xerox's key offering to the professional market, are an impediment to the Star's marketability.
- . Strong competition in the word processing market from IBM and Wang, and in the personal computing market from Apple and IBM has made the Xerox products harder to sell.

#### C. Product Overview: The Xerox Product Line

The Xerox product line for office workstations covers a range of functions and target customers. It is comprised of three systems:

- . the Star Professional Workstation, a high-cost network system, concentrating on document production, communications over a network, and a revolutionary user interface (very similar to the Lisa's user interface),
- . the 820-II Personal Computer, a moderately priced, very plain, CP/M personal computer, and
- . the 860 Word Processing System, a high-cost word processor.

In addition to these workstations, Xerox places a lot of emphasis on Ethernet, a local area network. In function, the Ethernet provides communication between stations and sharing of resources, such as printers and file servers. However, there is little similarity in function or user interface between the three systems, and communication over Ethernet is very limited between different types of systems.

#### D. Product Comparison: Lisa vs Xerox Star

The Star is Xerox's first commercial product with the form of revolutionary user interface developed at Xerox PARC. It uses a mouse, menus, and high-resolution graphics with multiple folders. This user interface style is the basis for the Lisa, although the Lisa has diverged in many ways.

The Star is useful only as a network system. The workstation requires an Ethernet, a print server, and a file server to be useful. This implies a very high entry price (of about \$70,000) and a marketing focus concentrated on large installations. The system is very slow.

#### Lisa's Advantages Over the Star

Lisa is quite a bit stronger in the solutions area and has products that are more oriented to knowledge professionals rather than to secretaries. For instance, Lisa offers a spreadsheet program, project management package, and business graphics--all key tools for professionals. Lisa's technology has an open architecture that allows outside software development, and since it's programmable, it also allows end-users to do their own development.

In addition, the Lisa is significantly faster than the Star. But even if the Lisa were only equal to the Star (which it is not), the price difference between the two systems is so substantial that the Lisa will be more competitive based on the price alone. With the Star, your first work station costs around \$82,000, which includes the work station at \$16,500 and software at \$5,600, a file server at \$25,000, a print server at \$30,000, and Ethernet for \$5,000.

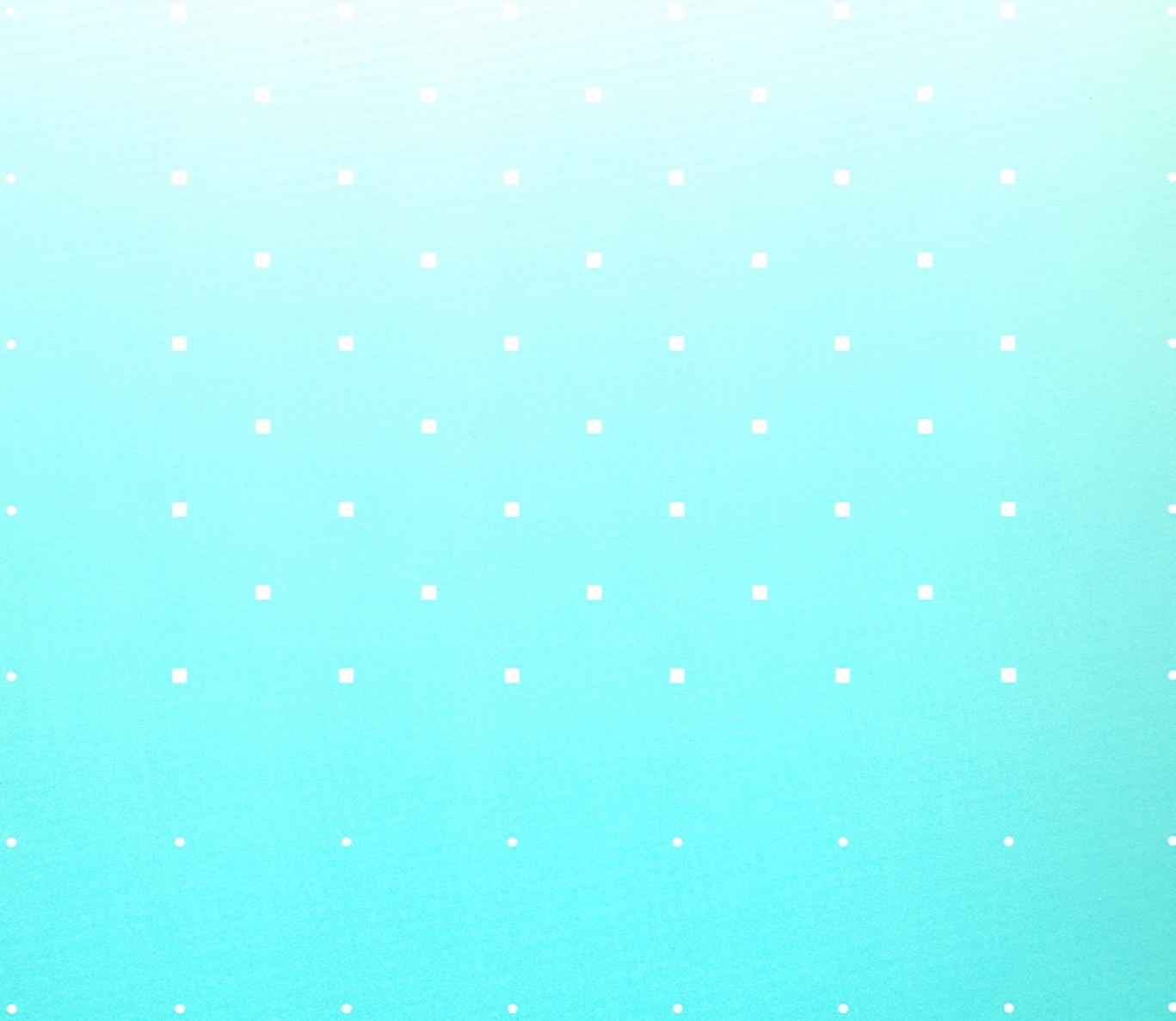
- E. Distribution                      Information to be provided at a later date.
- F. Service and Support              Information to be provided at a later date.

Xerox Star vs Lisa  
Feature Comparison

<u>Feature</u>	<u>Xerox Star</u>	<u>Lisa</u>
CPU	custom, multi-board	MC68000
Standard Memory	384K 2-byte words	1000K
Standard Diskette Storage	none	2 860K floppies
Standard Hard Disk	10 MB	5 MB
I/O Ports		
Parallel		1 (standard)
Serial (RS-232C)		2 (standard)
Expansion Slots		3
Monochrome Display	standard	standard
Type of Display	bit-mapped (std)	bit-mapped (std)
Resolution: Graphics Mode	809 x 1024	364 x 760
Display Size (diagonal)	10.6" by 13.6"	12 inch
Type of Keyboard		detachable
Number of Keys		73
Keypad		18-key
Data Communications	TTY, 3270 BSC	TTY, VT52, VT100, 3270 SNA (1983) 3270 BSC (1983)
Languages		Basic-Plus, Pascal, COBOL

Xerox 820-II Personal Computer vs Lisa  
Feature Comparison

<u>Feature</u>	<u>Xerox 820-II</u>	<u>Lisa</u>
CPU	Z80	MC68000
Clock Rate	4 MHz	5 MHz
Standard Memory	64K	1000K
Standard Diskette Storage	1 155K floppy	2 860K floppies
Standard Hard Disk	8 MB	5 MB
I/O Ports		
Parallel		1 (standard)
Serial (RS-232C)		2 (standard)
Expansion Slots		3
Monochrome Display	standard	standard
Type of Display	character (std)	bit-mapped (std)
Resolution: Graphics Mode	24 lines x 80 char	364 x 760
Display Size (diagonal)		12 inch
Type of Keyboard		detachable
Number of Keys		73
Keypad	10-key	18-key
Data Communications	TTY, 3270 BSC, 2780/3780	TTY, VT52, VT100, 3270 SNA (1983) 3270 BSC (1983)
Languages	BASIC	Basic-Plus, Pascal, COBOL



# *Documentation and Training*

## Learning To Use the Lisa

To learn how to operate the Lisa, new users start by following the instructions in their Owner's Guide for using LisaGuide. LisaGuide is an interactive user training program which teaches all of the Lisa's main features, including:

- . naming, opening, closing, and filing documents,
- . selecting and choosing from menus,
- . cutting and pasting,
- . moving and re-sizing windows, and
- . moving documents on the desktop.

The LisaGuide instruction is self-paced and permits users to move forward or backward in the program. It also enables the user to work on exercises and to see demonstrations of the various features.

The LisaGuide program offers feedback to users on their learning achievements, and it advises them on whether to move forward in the program or to continue practicing on a specific skill. Since the "desktop" is only simulated in LisaGuide, users cannot inadvertently destroy any files.

## Learning To Use the Applications

After completing LisaGuide, users move on to the individual applications (called "office tools" on the Lisa system) they wish to learn. Each application software package includes a manual and a floppy diskette containing the software and training examples for that application. Signposts in the manual tell the users where they are in the learning process and suggest what they might do next.

Each manual contains a quick-reference card and a complete index. The first part of the manual is a brief section entitled Getting Started. Intended to introduce users to the key features and operations of the application, Getting Started has been carefully designed and tested to enable users who have already completed LisaGuide to begin doing useful work in the application in an average of 30 minutes. Getting Started is interactive, permitting users to perform application operations and exercises on the Lisa as suggested in the manual.

After completing Getting Started, users may (1) choose to begin working on their own projects on the Lisa, consulting the manual's Reference Guide whenever a new operation comes up, or (2) work through the comprehensive Tutorial section of the manual. The Tutorial offers users the opportunity to learn nearly every feature of an office tool in only three to four hours. The Reference Guide is available for reviewing individual functions. Document examples for both the Tutorial and Getting Started sections are included on the diskette in the application software package. Thus, users can learn what they need without having to type or enter their own examples. In addition, these examples are on "stationery pads," so users can "tear off" a clean copy to work with, leaving other clean copies for other new users.

### Product and Trainer Training Courses

The Lisa Product/Sales Training Course is a 2-1/2 day workshop for field sales/support and dealer personnel. It provides the participants with an introduction to the Lisa and product positioning information, both with respect to other Apple products as well as competitive products. Participants become familiar with the Lisa system by working through the LisaGuide and Getting Started materials. This workshop also includes guidance and practice in skills needed to demonstrate the Lisa integrated office solution. The workshop is free to Personal Office Systems Dealers and is conducted by Sales Training Specialists at Apple's Regional Sales Offices and with Apple Manufacturer's Representatives. Dealers should ask their Apple Manufacturer's Representative for details and schedules, including course prerequisites.

The Lisa Trainer Certification Course is a three-day, in-depth workshop, providing qualified Apple dealers all the information and materials needed for them to provide expert end-user training. Each Lisa tool is covered both individually and as part of an integrated approach to business problems. Customization guidelines for specific needs help dealers provide more personalized training. This course is primarily self-paced, but periodic group presentations and discussions give participants the opportunity to benefit from the experience of others. The course is Apple Product Number SE60002 and may be ordered in the usual way through Apple Regional Support Centers. When dealers place orders for the course, they should specify the person they want contacted by Apple's Training Administrator. The Training Administrator will contact the specified person to schedule the course.



# ***Service and Support***

Q: What warranties come standard with the Lisa?

A: Standard Hardware Warranty. Lisa will be covered by the standard 90-day parts and labor warranty. The terms of this warranty will require the customer to return defective equipment to an Apple Authorized Service outlet, unless the warranty was upgraded under the provisions of an on-site maintenance contract.

Standard Software Warranty. The Lisa software will be covered by the standard 90-day defective media warranty.

Q: What other technical support and service is standard when you buy the Lisa?

A: Telephone Support. Each Lisa system will carry enough access time to Apple's Technical Support Organization (through a toll-free 800 number) to support the primary user through the 90-day warranty period. Technicians will provide answers to basic operator questions on the Lisa applications and languages.

Software Updates. The first update to the Lisa's applications software will be included in the price of the system.

Q: How about system installation?

A: All Lisa customers, whether National Accounts or individual customers purchasing through a dealer, can elect to have Lisa installed at their site. The installation will be provided either by a dealer or by RCA.

System installation includes:

- . interconnection of system, peripherals, and power source;
- . operating system configuration;
- . software loading onto ProFile;
- . verification of proper system operation; and
- . some operator training.

Q: If I buy the Lisas directly from Apple, who will service my equipment?

A: Apple direct sale customers will have three hardware support options:

1. RCA On-Site Maintenance. RCA is Apple's exclusive third-party, on-site maintenance vendor with 200 service offices located in the continental United States and Puerto Rico. For customers within 100 miles of an RCA service center, RCA guarantees 4-hour response between 8 A.M. and 5 P.M., Monday through Friday. Users with on-site service contracts can elect extended-hour service.
2. Servicing Owner. This program was developed for those customers geographically remote from Authorized Dealers or running critical applications which cannot afford the downtime associated with other repair programs. Servicing owners are treated very much like Level I dealers. They receive identical training and may purchase spares direct from Apple.
3. Authorized Dealer Service Program. All direct sale customers have the option of purchasing service through the Apple dealer network. These programs include Dealer On-site Service, AppleCare Carry-In Service, or time and materials carry-in repair.

Q: What hardware service alternatives will be available from the Personal Office Systems Dealers?

A: Although the range of service and support programs differ from dealership to dealership, typical programs include:

1. On-Site Maintenance. Dealers who offer on-site service design their own service contracts to meet the needs of the mix of customers they support.
2. AppleCare Carry-In Service. Through the dealer network, Apple will offer customers a fixed price, one-year, system maintenance contract. Customers can purchase an AppleCare Carry-In contract at any authorized Apple Personal Office Systems Dealer and may bring defective equipment into any Authorized POSD for repair. The goal is while-you-wait service.
3. Authorized Personal Office Systems Service. Every dealer who sells Lisa can provide carry-in service on the unit.

Q: How can I be sure that I have the latest software revision?

A: A mailing list will be compiled from the returned software license agreements. When updates become available, customers will be notified and offered the opportunity to purchase the update for a small administrative fee. Subscription to the first Lisa software and documentation upgrade will come with the system.



## ***Seminar Information***

The Lisa Seminar Package (PRODUCT NUMBER A6L0008)

Designed to help plan, promote, and run an effective and polished Lisa Seminar, the Lisa Seminar Package contains a Seminar Binder (including copies of the Seminar Planning Guide and a set of slides) and two VHS 1/2-inch videotapes.

Seminar Binder. A complete reference guide for Lisa seminars, this binder contains most of the information and materials needed to organize a seminar and run it successfully. The binder includes:

- . suggestions for seminar objectives, target audiences, agendas, and sources for mailing lists,
- . sample materials (invitations, return reply cards, and evaluation forms) needed to organize and promote a seminar,
- . the Seminar Planning Guide (see below), and
- . a set of slides to assist users in presenting a professional seminar; the script and photo of each slide is also included to help tailor the slides to individual needs.

Seminar Planning Guide. As an actual working tool for setting up the seminar, this Planning Guide contains:

- . a step-by-step checklist of preparation activities,
- . a budget worksheet,
- . floor plans for room setup,
- . equipment resource contacts, and
- . sample letters and dialogues.

Videotapes. Two VHS 1/2-inch videotapes accompany the binder in the Lisa Seminar Package:

- . LisaFlash can be used to provide an exciting and stimulating background on Lisa. This tape is usually presented at the beginning of the seminar.
- . Lisa Demo gives an actual demonstration of each software application. This videotape enables users to give a professional demo presentation if they haven't the time in the seminar for a live demonstration.

Demos.

An Electrohome projector or a Conrac monitor, can be used to give live demonstrations of Lisa to your attendees. Further information on how to obtain an Electrohome project or a Conrac monitor is included in the Seminar Package binder.

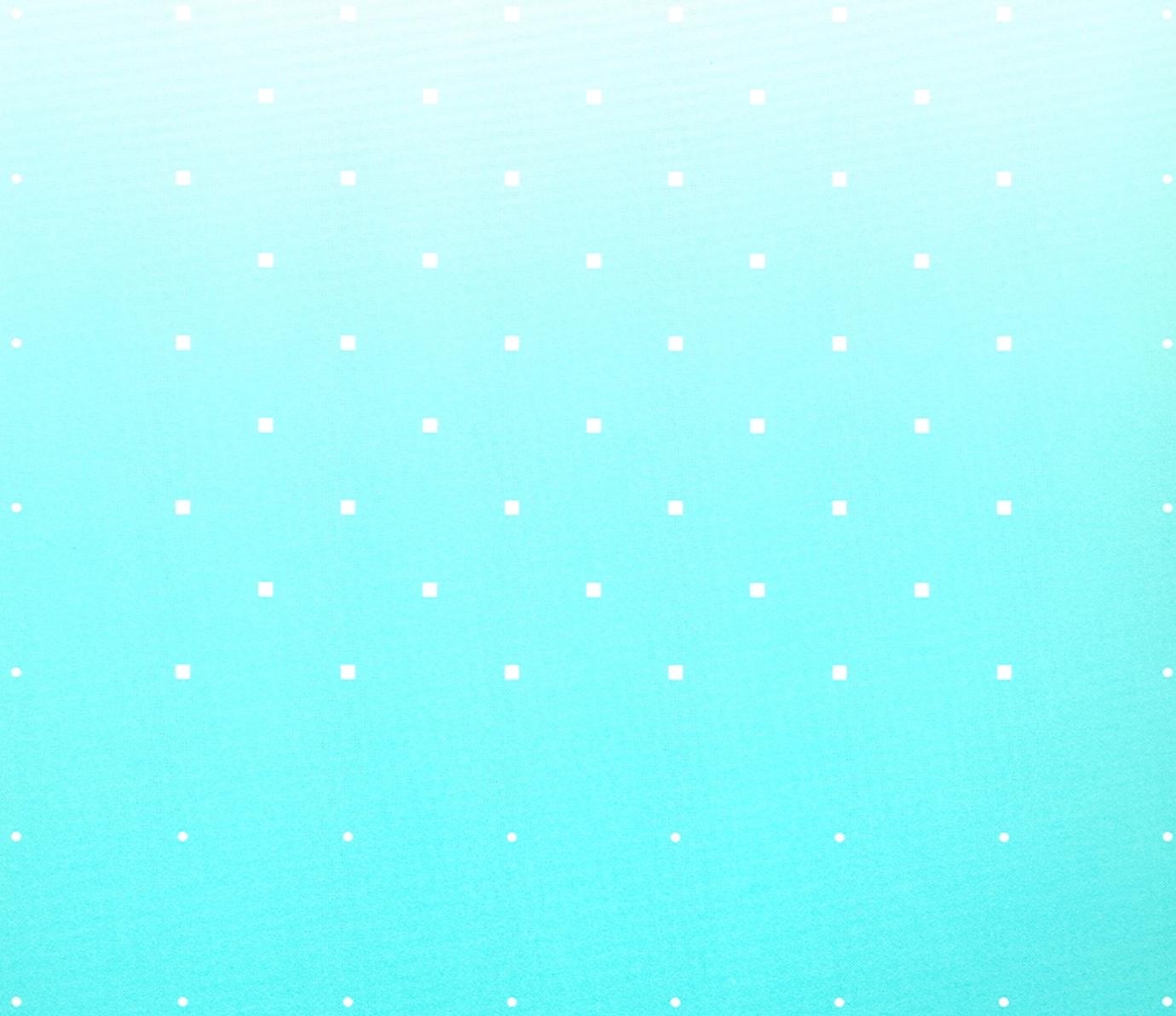
The Lisa Seminar Package is included with the Lisa Demo Unit.

The table of contents for the Lisa Seminar Package follows.



LISA SEMINAR PACKAGE  
Table of Contents

1. INTRODUCING THE LISA SEMINAR PACKAGE
  - A. Lisa Seminars: Profit Opportunities
  - B. Lisa Seminar Package
  
2. PRESENTING THE LISA SEMINAR
  - A. Objectives of the Lisa Seminar
  - B. Seminar Prospects
  - C. Mailing Lists
  - D. Seminar Agendas
  
3. ORGANIZING A LISA SEMINAR
  - A. Preliminary Plans and Budget
  - B. Seminar Site
  - C. Equipment Needs
  - D. Literature
  - E. Invitations, Reply Cards, and Newspaper Ads
  - F. Beverage/Food Arrangement
  - G. Seminar Day Supplies
  - H. Setup and Rehearsal
  - I. Etiquette
  - J. Follow-up Procedures
  
4. SEMINAR PROMOTIONAL MATERIALS
  - A. Sample Invitation
  - B. Sample Return Reply Card
  - C. Seminar Evaluation Form
  - D. Order Form for Invitations, Reply Cards, and Seminar Evaluation Forms
  - E. Sample Newspaper Ad Copy
  
5. SEMINAR PLANNING GUIDE
  - A. Checklist
  - B. Budget Worksheet
  - C. Floor Plan for Room Setup
  - D. Equipment Resources Guide
  - E. Sample Phone Follow-up Dialogue
  - F. Sample Letter: Accounting Firms
  - G. Sample Letter: Acknowledgement
  - H. Sample Letter: Thank You



# ***Merchandising and Promotion***

Apple provides authorized Personal Office Systems Dealers and Apple field sales and support personnel with a versatile family of merchandising materials, designed for use in every phase of the sales cycle—from prospect contact to sale-closing presentations.

New Personal Office Systems Dealers receive an initial quantity of all merchandising materials, called the *Lisa Starter Kit*, as part of each Lisa Demo Unit. These merchandising materials are contained individually in the Personal Office Systems Price List, and additional quantities can be ordered from Apple Support Centers at a moderate cost.

Lisa merchandising materials currently available from Apple include:

- o Sales Literature
- o Point-of-Sale Display
- o Seminar Package
- o Launch Package
- o Posters and Buttons

The colors of the Lisa merchandising and packaging materials are predominantly muted tones of grey and purple, with original graphics on each software package and matching data sheet.

## **Lisa Sales Literature**

1. **The Lisa Flyer.** A brief, four-page overview of the Lisa system, designed to give new prospects an introduction to the Lisa—its technology, revolutionary user interface and software integration, features, benefits, hardware components, and applications. The flyer, printed in full color, can be used as the initial contact piece in the store or in a customer's office, as a handout at trade shows and seminars, and as an inquiry-generating mailing piece. (Apple Product Number A6F0018)
2. **The Lisa Brochure.** A deluxe, 18-page full-color brochure offering a detailed description of the Lisa system, including full system specifications and a foldout section on the user interface. The brochure covers every aspect of the Lisa story and is designed for readers who have already read the Lisa flyer and want to know more. Excellent as a leave-behind in a prospect's office, as a take-away item for prospects visiting the dealer store, and for use as a follow-up mailing piece. Apple includes the brochure in its own Lisa inquiry follow-up packet (Apple Product Number A6F0019).

3. **Lisa Data Sheets.** Sixteen data sheets have been published to provide the most detailed marketing information available on Lisa hardware and software. Most of the full-color Lisa data sheets are four pages in length, some are two pages, one is six pages. All are designed to be read by interested and qualified prospects who want in-depth information on Lisa capabilities. Each data sheet contains an overview, a section on features and benefits of the individual hardware item or software application, and complete specifications. The Lisa user interface is explained in every data sheet. Easy-to-read screen shots are used to illustrate many of the features unique to the Lisa. The sixteen data sheets are effective sales aids for prospects who have shown serious interest in the purchase of a system and have already seen the flyer and brochure. They include:

Title	No. of Pages	Product Number
System Overview	6	A6F0016
System Hardware	4	A6F0017
LisaWrite	4	A6F0012
LisaCalc	4	A6F0013
LisaGraph	4	A6F0014
LisaDraw	4	A6F0002
LisaList	4	A6F0001
LisaProject	4	A6F0003
LisaTerminal	4	A6F0008
Dot Matrix Printer	4	A6F0011
Daisy Wheel Printer	4	A6F0010
ProFile	2	A6F0009
Parallel Interface Card	2	A6F0020
Pascal	4	A6F0006
COBOL	2	A6F0005
BASIC-Plus	4	A6F0004

4. **Lisa Literature Folder.** A beautiful medium-grey folder, displaying Lisa graphics, to be used as a repository for sales literature, proposals, training materials, mailings, etc. The folder contains two hand-glued pockets and makes an attractive package for materials left in the prospect's office or distributed at a seminar or training session.

#### **Point-of-Purchase Display**

The Lisa point-of-purchase display is a four-foot-wide, four-foot-high table-mounted display made of medium-gray and dark-gray laminate. The display is designed to sit on a table or counter, with the Lisa installed on the horizontal surface and the ProFile beneath it, hidden underneath a five-inch-high riser which supports the surface (Apple Product Number A6L0014).

The horizontal area of the display is large enough to accommodate the Lisa and the Dot Matrix Printer and still allow plenty of room for workspace and documentation. The vertical face of the display features a slide-in graphics panel containing product and Apple identification, product highlights, and four-color photographs. Beneath the graphics panel is a metal shelf with a clear acrylic literature rack. The shelf is designed for software package display; the rack contains eight slots for stacking brochures and data sheets.

#### **Seminar Package** (Apple Product Number A6L0008)

One of the most effective means of showing Lisa to groups of people is through a professionally planned, staffed, and presented Seminar. Not only is Lisa shown off in the best light, but the seminar positions Apple as a leading supplier in the office systems marketplace. The Lisa Seminar Package is a complete, easy-to-use kit designed to enable you to put on successful Lisa seminars. It contains everything you need to plan, organize, and present a seminar. Packaged in a sturdy corrugated box (suitable for mailing, if necessary), the package contains:

1. A three-ring binder containing information on seminar objective setting, seminar budgeting and followup, samples of invitations, reply cards, and newspaper ads, "thank-you-for-attending" letters, and more. Included in the binder is a bound Seminar Planning Guide booklet that lets you plan every step of the seminar process, with suggested timing for each procedure. Also included are nearly 150 35mm color slides, divided into twenty modules, to enable you to pick and choose the slides you think will be most effective for your presentation. Nearly all the slides were prepared on the Lisa, in the LisaDraw application. The slides cover every aspect of the Lisa system, including competition and pricing. A bound booklet containing a picture of each slide and accompanying script is also included.
2. Two videotapes in one-half-inch VHS format. "Lisa Flash" is a seven-minute, features-and-benefits-oriented presentation designed to introduce new prospects to the Lisa. We suggest you use it to kick off the Lisa seminar, following immediately after the welcome and introduction. The "Lisa Demo" is a detailed, 15-minute videotaped demo, introducing viewers to the unique Lisa user interface and showing how to perform common functions.

Naturally, the audiovisual materials contained in the Seminar Package can also be used very effectively in sales presentations in your store or the prospect's office. Additional copies of the Seminar Package alone, as well as the two videotapes separately, will be available in the future and will appear on the POS Product Family Price List.

#### **Lisa Launch Package** (Free to new dealers)

Three items are included in the Lisa Launch Package: the Dealer Information Guide, the Sales and Marketing Binder, and the Advertising Planner Kit.

1. **Dealer Information Guide.** This eight-page, full-color booklet offers a description of the Lisa program for dealers, covering the intended buyer and marketplace, the product, merchandising programs provided by Apple, service and support, pricing, the dealer demo unit, ordering information, and commonly asked questions and answers. This guide is given to each new authorized Personal Office Systems dealer.
2. **Sales and Marketing Binder.** The binder (the book you are now reading) is a comprehensive reference source on the Lisa. It offers such in-depth information as product positioning, Dealer Fact Sheets, pricing, detailed ordering information, complete descriptions of available service offerings, reviews of competitive products, merchandising information, product and service training and documentation descriptions, and much more. Information in the binder will be updated regularly, just as your Apple II and Apple /// Binders are.
3. **Advertising Planner Kit.** Contained in a grey folder, the Kit contains everything you need to plan an effective advertising program for the Lisa. It includes information on the co-op advertising program, a media schedule for national and regional Lisa advertising, sign-up for dealer co-op advertising, direct-mail and ad slicks, and samples of Lisa ads completed to date, along with rough sketches of ads to come.

#### **Poster and Button**

1. **Lisa Poster.** A dramatic 25-x-37-inch full-color graphic suitable for display in your store, training facility, office--anywhere. The Lisa Poster is orderable from the POS Price List and, when framed, makes a handsome gift for customers. Two posters are included in the Lisa Starter Kit. (Apple Product Number A6L0013)
2. **Lisa Button.** The square, plastic-laminated metal button echos the unique and colorful graphics employed in all the Lisa merchandising materials. The button is fun to wear, always elicits comment, and is an effective promotional device both in and out of the dealer store. Ten buttons are included in the Lisa Starter Kit.

Additional posters may be ordered from the POS Price List; buttons, at this time, may not.



## *Ordering Procedures*

The Personal Office Systems products listed on the Personal Office Systems Product Family Price List (in the next section) may be ordered through your Apple Manufacturers Representative or through your Regional Support Center. Ordering Personal Office Systems products is no different than ordering any other Apple product. Here are the guidelines restated.

When ordering product, please include the following information:

- \* dealer name and dealer number
- \* part number
- \* quantity desired
- \* requested ship date
- \* how product is to be shipped (may specify "best way")
- \* where product is to be shipped (if different than normal)
- \* specify if product is being purchased on ITT floor planning (products retailing for \$200.00 or more are eligible)
- \* name of person calling in order
- \* purchase order number

The minimum order is \$250.00.

Dealer purchases are FOB Apple Shipping location.

UPS shipping charges are prepaid by Apple then included on dealer invoice.

Other shipping methods are shipped freight collect.

Lisa Office System, A6P0001

The standard Lisa Office System consists of:

- \* The 32/16-bit MC68000 with 1 megabyte of main memory, 12-inch bit-mapped display, dual 851K disk drives, keyboard, and mouse;
- \* Apple's 5-megabyte ProFile hard disk;
- \* Six integrated office applications;  
  
LisaCalc,  
LisaList,  
LisaWrite,  
LisaDraw,  
LisaGraph, and  
LisaProject;
- \* Owner's Guide and manuals for each software application;
- \* Standard 90-day Apple Limited Warranty;
- \* Initial access to Customer Support Hotline.

Lisa Dealer Demo Unit, A6P0002 (only one per authorized Personal Office Systems Dealer location)

When you order a Lisa Dealer Demo Unit, you will receive:

- \* a 1-megabyte Lisa with two built-in 860K floppy disk drives, a 5-megabyte ProFile, and Apple's Dot Matrix Printer (cable, and Parallel Interface Card included);
- \* Seven integrated software applications (six Office Applications plus LisaTerminal);
- \* Lisa Starter Kit consisting of:  
  
Lisa Sales Literature,  
Lisa Point-of-Sale Display,  
Lisa Seminar Package,  
Lisa Demo Book,  
  
Lisa Launch Package, and other merchandising materials including posters and buttons.

The Starter Kit sales literature is provided free of charge to Personal Office Systems Dealers. Additional quantities of these literature items can be

ordered through your Apple Manufacturers Rep or Apple Regional Support Center. See the Price List which follows.

ProFile Accessories Kit, ASC0005

The ProFile unit which comes with the Lisa Office System utilizes the one available parallel port in the Lisa mainframe. A ProFile Accessories Kit must be purchased with each *additional* ProFile system to make a complete unit. The kit contains a Lisa/ProFile Manual, power cable, and Lisa Parallel Cable.

Parallel Interface Card, ASBB101

Because the ProFile utilizes the Lisa Parallel Port, a Parallel Interface Card must be ordered when attaching a Dot Matrix Printer or other parallel device (like additional ProFiles) to the Lisa.

Dot Matrix Printer Accessory Kit, ASC0350

Every Dot Matrix Printer sale requires an accessory kit. Included are a Lisa/DMP Manual, Parallel Cable interface assembly for Lisa, unpacking instructions, and a warranty card.

Daisy Wheel Printer Accessory Kit, ASC0351

Every Daisy Wheel Printer sale requires an accessory kit. Included are a Lisa/DWP Manual, Serial Cable interface assembly for Lisa, unpacking instructions, and a warranty card.

## Ordering the Lisa Spares Kit

Personal Office Systems Dealers must be a Level I Service Center (and trained on a specific service kit, i.e. Lisa, ProFile, etc.) to order service parts. Service parts may be ordered by filling in the purchase order section of the Dealer Reporting Package or by placing an order directly with the Service Department at your Support Center.

### Lisa Spares Kit, (652-0520) 6 month deferred payment plan

Apple Computer, Inc. and ITT Diversified Credit Corp. have developed a program for deferring payment of Lisa Spares Kits. This program is for authorized Personal Office Systems Dealers that have an established line of credit with ITT/DCC.

#### Terms

The program is for a maximum of 12 months beginning from date of the Apple invoice. The program is "No Cost" for 6 months beginning from the date of Apple invoice. After 180 days, dealers are required to pay 1/6 of beginning balance every 30 days.

#### Curtailments/Payments

All curtailment and interest charge requirements must be met to take advantage of the maximum term. Curtailments are a reduction in the principal balance remaining on each invoice. This program requires that on the:

- 180th day, 1/6 of beginning balance due
- 210th day, 1/6 of beginning balance due
- 240th day, 1/6 of beginning balance due
- 270th day, 1/6 of beginning balance due
- 300th day, 1/6 of beginning balance due
- 330th day, 1/6 of beginning balance due
- 360th day, the remaining balance is paid in full

#### Charges

Dealer charges are computed on an ADB (Average Daily Balance) basis within a calendar month. Charges accrue beginning on the 180th day from Apple invoice date until receipt of payment to ITT. If the invoice amount is paid prior to the 180th, day there will be no interest charged.

**Rates**

The interest rate charged the dealer will be the prevailing Prime Rate of CitiBank of New York plus 1% on the last working day of each month for charges accrued on the following month.

**Ordering**

It is necessary that the product intended for this program be ordered as such. An order must be clearly identified for "Lisa Spares Kit Financing" so as to enable Apple to properly invoice ITT/DCC.

The Lisa Spares Kit is the only product eligible under this special program. However, Lisa products are floorplannable under the normal arrangements.



**Apple Personal Office Systems Products**  
**June 15, 1983 - Confidential Dealer Price List**



Product	Description	Note	Suggested Retail Price	1-3	4-9	10-19	20-39	40-79	80+
---------	-------------	------	------------------------	-----	-----	-------	-------	-------	-----

LISA OFFICE SYSTEMS

+ A6P0001	Lisa Office System		9995.00	6897.00	6497.00	6497.00	6497.00	6497.00	6497.00
+ A6P0002	Lisa Demo System (one per store)		N/A	5995.00	N/A	N/A	N/A	N/A	N/A

LISA DISK DRIVE AND ACCESSORY

+ A9M0005	Profile Disk Drive		2195.00	1425.00	1340.00	1315.00	1280.00	1240.00	1215.00
A6C0005	Profile Accessory Kit for Lisa	1	N/A	36.00	36.00	36.00	36.00	36.00	36.00

LISA PRINTERS AND ACCESSORIES

+ A3M0025	Daisy Wheel Printer		2195.00	1384.00	1341.00	1309.00	1292.00	1276.00	1259.00
A6C0351	DMP Accessory Kit for Lisa	2	N/A	21.00	20.00	19.00	18.00	17.00	16.00
+ A2M0072	DMP Tractor Forms Feeder		279.00	184.00	179.00	174.00	168.00	163.00	157.00
A2M0074	Multi-Strike Ribbon (IQP) (6/pack)		10.50ea	40.00	39.00	38.00	37.00	36.00	36.00
A2M0081	Printwheel, Boldface (6/pack)		13.75ea	53.00	51.00	50.00	48.00	47.00	47.00
A2M0079	Printwheel, Courier 10 (6/pack)		13.75ea	53.00	51.00	50.00	48.00	47.00	47.00
A2M0080	Printwheel, Gothic 15 (6/pack)		13.75ea	53.00	51.00	50.00	48.00	47.00	47.00
A2M0078	Printwheel, Prestige Elite (6/pack)		13.75ea	53.00	51.00	50.00	48.00	47.00	47.00
+ A2M0058	Dot Matrix Printer		675.00	419.00	406.00	393.00	381.00	371.00	361.00
A6C0350	DMP Accessory Kit for Lisa	2	N/A	21.00	20.00	19.00	18.00	17.00	16.00
A2M0077	Cloth Ribbon (DMP) (6/pack)		10.50ea	42.00	40.00	39.00	38.00	37.00	36.00

INTERFACE CARDS

A6BB101	Parallel Interface Card		195.00	127.00	121.00	121.00	121.00	121.00	121.00
---------	-------------------------	--	--------	--------	--------	--------	--------	--------	--------

LISA MISCELLANEOUS ACCESSORIES

A9D0001	Fileware Blank Diskettes (5/pack)		60.00	43.00	42.00	41.00	40.00	40.00	40.00
---------	-----------------------------------	--	-------	-------	-------	-------	-------	-------	-------

Notes:

- + - Product eligible for floorplanning.
- 1 - The Profile Disk Drive and Accessory Kit for Lisa are included in the total Suggested Retail Price. The Accessory Kit is sold with Profile and not as a stand alone product to the consumer.
- 2 - The Apple Printers (DMP/DWP) and Accessory Kits for Lisa are included in the total Suggested Retail Price. The Accessory Kit is sold with the printers and not as a stand alone product to the consumer.

SOFTWARE AND MANUALS FOR LISA

Software and Manuals qualify for an Apple Software credit. The schedule below is based on total dollar volume (net of returns) of software and manuals purchased during each Apple fiscal month. Credit is based on invoices (not including freight, insurance and special promotions except when noted).

MONTHLY DOLLAR VOLUME\*

CREDIT (% OF MONTHLY \$ VOLUME)

Up to \$3000	0%
\$3001. to \$6000.	3%
\$6001. to \$10,000.	6%
\$10,001. to \$50,000.	11%
\$50,001. to \$100,000.	15%
Over \$100,001.	20%

APPLE FISCAL MONTH

FROM TO

June	June 4, 1983	July 1, 1983
July	July 2, 1983	August 5, 1983
August	August 6, 1983	September 2, 1983

\* Based on invoices net of returns, freight and insurance.

Product	Description	Note	Suggested Retail Price	1-3	4-9	10-19	20-39	40-79	80+
LISA SOFTWARE									
+ A6D0157	LisaTerminal	1	295.00	180.00	174.00	174.00	174.00	174.00	174.00
+ A6D0101	Pascal	1	595.00	363.00	351.00	351.00	351.00	351.00	351.00
+ A6D0103	BASIC-Plus	1	295.00	180.00	174.00	174.00	174.00	174.00	174.00
+ A6D0104	COBOL	1	995.00	607.00	587.00	587.00	587.00	587.00	587.00
LISA REFERENCE MANUALS									
A6L0100	Hardware Theory of Operations	2	125.00 ea	75.00	75.00	75.00	75.00	75.00	75.00
A6L0101	Hardware Reference Guide	2	45.00 ea	27.00	27.00	27.00	27.00	27.00	27.00
A6L0103	Owner's Guide	2	45.00 ea	27.00	27.00	27.00	27.00	27.00	27.00
A6L0111	Pascal Manual Set	2	95.00 set	57.00	57.00	57.00	57.00	57.00	57.00
A6L0112	BASIC-Plus Manual Set	2	45.00 set	27.00	27.00	27.00	27.00	27.00	27.00
A6L0113	COBOL Manual Set	2	95.00 set	57.00	57.00	57.00	57.00	57.00	57.00
A6L0141	LisaCalc Manual	1	45.00 ea	27.00	27.00	27.00	27.00	27.00	27.00
A6L0142	LisaDraw Manual	1	45.00 ea	27.00	27.00	27.00	27.00	27.00	27.00
A6L0143	LisaGraph Manual	1	45.00 ea	27.00	27.00	27.00	27.00	27.00	27.00
A6L0144	LisaWrite Manual	1	45.00 ea	27.00	27.00	27.00	27.00	27.00	27.00
A6L0145	LisaList Manual	1	45.00 ea	27.00	27.00	27.00	27.00	27.00	27.00
A6L0146	LisaProject Manual	1	45.00 ea	27.00	27.00	27.00	27.00	27.00	27.00
A6L0147	LisaTerminal Manual	1	45.00 ea	27.00	27.00	27.00	27.00	27.00	27.00

Notes:

- + - Products eligible for floorplanning.
- 1 - Available only with Lisa Office System. Not sold as a stand alone product.
- 2 - Availability to be announced.

Product	Description	Note	Suggested Retail Price	1-3	4-9	10-19	20-39	40-79	80+
<b>LITERATURE</b>									
A6F0019	18 Page Brochure (25/pack)		N/A	20.00	20.00	20.00	20.00	20.00	20.00
A6F0018	4 Page Flyer (25/pack)		N/A	6.25	6.25	6.25	6.25	6.25	6.25
A6F0017	System Hardware Data Sheet (25/pack)		N/A	3.75	3.75	3.75	3.75	3.75	3.75
A6F0006	Pascal Data Sheet (25/pack)		N/A	3.75	3.75	3.75	3.75	3.75	3.75
A6F0004	BASIC-Plus Data Sheet (25/pack)		N/A	3.75	3.75	3.75	3.75	3.75	3.75
A6F0005	COBOL Data Sheet (25/pack)		N/A	3.75	3.75	3.75	3.75	3.75	3.75
A6F0011	Dot Matrix Printer Data Sheet (25/pack)		N/A	3.75	3.75	3.75	3.75	3.75	3.75
A6F0009	Profile Data Sheet (25/pack)		N/A	3.75	3.75	3.75	3.75	3.75	3.75
A6F0016	System Overview Data Sheet (25/pack)		N/A	3.75	3.75	3.75	3.75	3.75	3.75
A6F0013	LisaCalc Data Sheet (25/pack)		N/A	3.75	3.75	3.75	3.75	3.75	3.75
A6F0002	LisaDraw Data Sheet (25/pack)		N/A	3.75	3.75	3.75	3.75	3.75	3.75
A6F0014	LisaGraph Data Sheet (25/pack)		N/A	3.75	3.75	3.75	3.75	3.75	3.75
A6F0012	LisaWrite Data Sheet (25/pack)		N/A	3.75	3.75	3.75	3.75	3.75	3.75
A6F0001	LisaList Data Sheet (25/pack)		N/A	3.75	3.75	3.75	3.75	3.75	3.75
A6F0003	LisaProject Data Sheet (25/pack)		N/A	3.75	3.75	3.75	3.75	3.75	3.75
A6F0008	LisaTerminal Data Sheet (25/pack)		N/A	3.75	3.75	3.75	3.75	3.75	3.75

**APPLECARE CARRY-IN SERVICE FOR LISA PRODUCTS**

SC60014	Lisa Office System		360.00/yr	234.00/yr
A3G0022	Profile Disk Drive		276.00/yr	180.00/yr
A3G0024	Daisy Wheel Printer		228.00/yr	147.00/yr
A2G0041	Dot Matrix Printer		120.00/yr	78.00/yr
A2F0109	Registration Forms (10/pack)		N/C	N/C

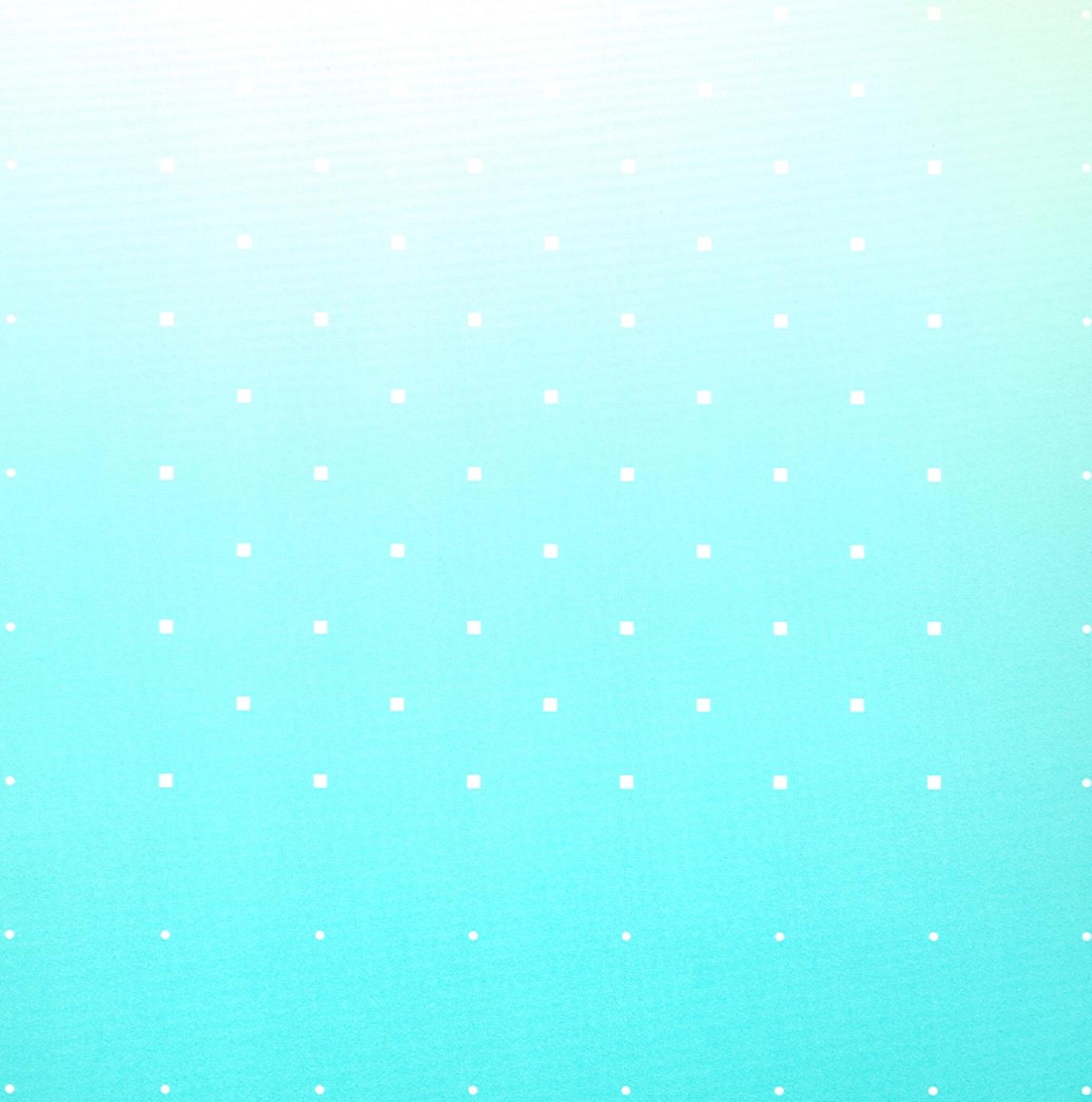
**LISA TRAINING COURSES**

SE60002	Dealer Trainer Certification (Per student)		N/A	400.00	400.00	400.00	400.00	400.00	400.00
---------	---	--	-----	--------	--------	--------	--------	--------	--------

**Notes:**

1 - Availability to be announced.

Apple and the Apple logo are registered trademarks of Apple Computer, Inc. This price list supersedes all previous price lists.  
 Profile is Apple's trademark for its 5-megabyte mass storage device. Price Lists are subject to change without notice.  
 Silentype is a registered trademark of Apple Computer, Inc. Products subject to discontinuation without notice.  
 Softcard is a trademark of Microsoft Corporation. Quantity prices apply to single delivery, single location.





---

**Questions and Answers**

**May 1983**

- **April Update**
- **General**
- **Hardware**
- **Software**
- **Independent S/W Developers**
- **Small Business Software**
- **International**
- **Data Communications**
- **AppleNet**
- **Apple/Ethernet**
- **Service and Support**

# Lisa

## Questions and Answers Update

Below is a list of common questions and answers to those questions which we are currently receiving from the field. This short document is being issued as an interim information sheet prior to the availability of the next issue of "Lisa-Questions and Answers".

### General

#### **When will Lisa be shipped?**

Lisa will begin customers shipments in June 1983. The Lisa is currently in Beta test sites and at Personal Office Systems Dealer locations, and is being used by selected software developers.

#### **Can I get an accounting package?**

BPI is currently working on a single-user accounting package which will run on the Lisa. Also, Open Systems will offer a single-user and multi-user accounting package. Both will be available in approximately the same timeframe as the Lisa.

#### **Will all my Apple // software run on Lisa?**

Since the Lisa is a revolutionary product, it is designed to run new, integrated software that is not currently possible on Apple //'s. However, programs written for the Apple // in Pascal and BASIC may be transported to the Lisa where they can run with minor modifications.

#### **How can a Lisa customer get their ProFiles software reloaded?**

Ten diskettes come with every Lisa Office System. A ProFile can be reloaded by simply transferring information on these diskettes to the ProFile. The Lisa Owner's Guide contains detailed instructions for building ProFiles.

#### **How much room is left after all the tools and Office System are put on the ProFile?**

The Office System and tools take up approximately 2.5 megabytes of storage, leaving 2.5 megabytes for user storage.

#### **What data is integrated? What can I cut and paste to where?**

Besides being able to cut and paste within documents, you may transfer data from different document types as follows:

- **LisaCalc:** Cells may be copied into the LisaGraph table, into LisaWrite documents, and into LisaTerminal.
- **LisaGraph:** Graphs created by LisaGraph may be copied into LisaDraw for customization.
- **LisaProject:** Charts created by LisaProject may be copied into LisaDraw for customization.
- **LisaTerminal:** Data received from LisaTerminal may be copied into LisaWrite documents.
- **LisaWrite:** Text from LisaWrite may be copied into LisaTerminal.

In terms of future integration, we are working towards the integration of all data where it makes sense (e.g. pasting LisaDraw information into a LisaWrite document makes sense, but pasting LisaDraw into LisaCalc does not). Cutting and pasting from LisaTerminal into LisaCalc is a high priority.

**Will future versions of the Lisa use the new version of the MC68000, which Motorola has just introduced, that is much faster than existing versions?**

Apple will continue to investigate new microcomputer products in our Advanced Development Labs. The new Motorola offerings are certainly promising.

**Will color versions of Lisa become available?**

Apple feels that our customers would like color output, but few would be willing to spend an additional 30%-50% just for a color display. Apple is actively exploring methods of producing color output from Lisa. In the long term, a color version of the system would be desirable, but only if the cost of color displays declines significantly.

### Development System

**What kind of Pascal will run on Lisa? When will it be available?**

Pascal on the Lisa is an extension to International Standards Organizations Pascal. Lisa Pascal will be available for customers about a month after first

release of the Lisa.

**Is Pascal compiled or interpreted?**

Pascal on the Lisa is compiled for high performance.

**What kind of BASIC will run on Lisa? When will it be available?**

BASIC which will run on Lisa is a version of DEC BASIC Plus and will be available for customers about a month after first release of the Lisa.

**Will BASIC compiler be available?**

No, at first release, BASIC will be interpreted.

**What kind of COBOL will run on Lisa? When will it be available?**

The version of COBOL that will run on Lisa is GSA High COBOL and will be available about a month after first release of the Lisa.

**When will other languages be available?**

We are currently exploring availability of other development languages, such as Fortran 77.

**What does the Toolkit do? When will it be available?**

The Toolkit is a revolutionary method of writing integrated applications for the Lisa desktop environment. Specifically, it provides developers with a powerful set of runtime libraries which will allow them to develop applications which have the same user interface as the Office System applications which are shipped with the Lisa. In addition, applications can be written more quickly using the Toolkit, since the standard user interface capabilities are already provided. The Toolkit will be available late in 1983.

**What is the relationship between the Toolkit and the Workshop?**

The Workshop is the environment in which programs are written and contains such development tools as the editor, linker, and the compilers and interpreters. The Toolkit is a separate product, a "shell" in which a software developer places his program if that developer wishes the program to be integrated into the Lisa desktop environment. The developer will still use the Workshop tools to integrate his program with the Toolkit.

### **Can you interface Pascal, COBOL, and BASIC to the Toolkit?**

The Toolkit is written in, and designed to interface with, a superset of Pascal which is called Clascal. Clascal is an object oriented programming language that is somewhat like Simula-67 or Smalltalk-80. Clascal is easier to learn than Simula-67 or Smalltalk-80 because it has a Pascal-like syntax and all the features of Pascal. You cannot currently interface COBOL and BASIC programs with the Toolkit.

### **Can the Lisa ProFile be partitioned to run the Office System, Workshop, and other development environments.**

A Lisa ProFile can contain both the Office System and the Workshop. However, other environments such as XENIX or CP/M cannot share a ProFile with either the Office System or the Workshop.

### **How will CP/M be implemented?**

Digital Research has announced their intention to develop and market a version of CP/M 68 for the Lisa. This will be a standalone software product. That is, it will not run in the Office System environment. Further questions concerning this product should be directed to Digital Research.

### **What will Xenix be and when will it be available?**

Xenix is a multi-user operating system developed and marketed by Microsoft. It allows several users to share a single computer. Microsoft has announced their intention to develop and market a version of XENIX for the Lisa. However, this will be a standalone software product, i.e. it will not run in the Office System environment, nor can you run Lisa software in the Xenix environment. Further questions concerning this product should be directed to John Ulett, Product Manager/Xenix, at Microsoft. His phone number is (206)828-8080.

### **Network and Datacomm**

#### **What will AppleNet do? When will it be available? What is the future on networking?**

The first release of AppleNet, available late 1983, will provide document transfer capability between Lisas and shared printing between all Apple computers. Lisa document transfer capability will consist of placing documents in an envelope, much like they are now put into a folder. The envelope is then

addressed with the addressees' names, and then deposited in a new icon on the Lisa desktop, the out-basket. Documents received from others on the network will appear in envelopes in another icon, the in-basket, and may be opened and examined just as if it were in a folder. Transmission occurs as a background task on the Lisa. When signing onto the network, password protection will be utilized for identification.

In the future, AppleNet will provide Print Servers, which will queue print requests from computers on the network, File Servers which will allow common user storage media such as large capacity hard disks (a security mechanism will be provided), and Communication Servers to allow shared access to datacomm devices.

Please see the latest version of "Lisa Questions and Answers" for more detail.

**What datacomm products are available now, and what will be available in the future?**

LisaTerminal will be available at first release. LisaTerminal emulates a VT52, VT100 or TTY terminal. By connecting LisaTerminal to the Apple Cluster Controller, you can use LisaTerminal to emulate IBM 3270 terminals. Additionally, 3270 BSC and SNA emulators will be available late this year. The 3270 BSC Communication Package will emulate a 3271 Model 2 controller and a 3277 display, as well as a printer. The 3270 SNA Communication Package will emulate a 3274 Model 51C controller and a 3278 display, as well as a printer.

# General Questions and Answers

## **Describe the POS division.**

The Personal Office Systems Division was formed to design and market advanced computer products for the office market.

## **What is this division's charter?**

Its charter is to create and serve the personal office systems marketplace with innovative computer hardware, software, literature, training materials, service, and support.

## **When was this division formed?**

September 1980.

## **Who is managing this division?**

John Couch, Vice President and General Manager. Reporting to Couch are Wayne Rosing, Director of Engineering; Deme Clainos, Director of Marketing; Dave Craft, Director of Manufacturing; Ed Unkart, Controller; Pete Cressman, Manager of Software Quality Assurance.

## **Did this division develop the Lisa?**

Yes. POS designed all hardware, software, manuals, and training materials, and continues to support the manufacturing effort.

## **When did development begin?**

January 1980.

## **Was the Lisa developed in response to competition?**

No. The Lisa was developed to position Apple well beyond the competition and to ensure our long term success. The Lisa is the result of an effort to bring highly advanced software and hardware technology to one of the most promising markets available: the office.

## **Describe the Lisa computer.**

The Lisa is a revolutionary computer system that's powerful and easy to use. It helps office executives, managers, professionals, and secretaries make better decisions and communicate more effectively.

The Lisa user interface is one of the keys to its success. One controls the machine by using a pointing device, called a mouse, to select operations or modify information on the screen. The Lisa bit-mapped display presents graphical images of familiar desktop objects. These images, called "icons", are simpler and more intuitive than plain text.

The system is based on the MC68000 microprocessor, one of the most powerful CPUs invented. Lisa comes with one-megabyte of memory, as well as two high-density floppy disk drives, and a five-megabyte hard disk.

Standard with the Lisa system are six integrated software applications: **LisaWrite**, an easy-to-use word processor; **LisaCalc**, a sophisticated electronic spreadsheet; **LisaGraph**, a package that turns raw numbers into meaningful charts and graphs; **LisaDraw**, a graphics editor used to augment words with pictures and charts as well as create presentation materials; **LisaProject**, a project scheduling system that allows managers to play "what-if" with schedules, tasks, and resources; and **LisaList**, a personal database to manage information. A

seventh application, **LisaTerminal**, enables Lisa to act as an ordinary terminal to communicate with other computer systems.

**Why was the name Lisa chosen?**

**Lisa:** Local Integrated Software Architecture

**Local:** The Lisa embodies the one-person/one-computer concept of personal computing. People should have their own machines, not just a share of some complex entity at the other end of a computer cable. **Integrated:** The Lisa has applications that work together. They share a common user interface and many of the same functions, so you only have to learn one way of doing things. Integration also means that you can move information from one application to another, to graph the results of a spreadsheet analysis, for example. **Software:** The key to the Lisa revolution is innovative software. Software distinguishes Lisa from traditional computers. **Architecture:** The entire system -- hardware, operating system, and applications -- was designed to support the advanced user interface as well as to support future expansion.

**When was the Lisa introduced?**

January 19, 1983.

**How much will the Lisa cost?**

The Lisa Office System, including one megabyte of main memory, two high-density floppy disk drives, the 5-megabyte ProFile hard disk, and the six software applications, has a suggested retail price of \$9,995.

**Why is the Lisa so expensive?**

It's not. The Lisa is an advanced office workstation complete with integrated software at a suggested retail price of \$9,995. Note that almost all other computers would cost well over \$10,000 if they had one-megabyte of memory, 2 built in disk drives, a 5 -megabyte hard disk, six application programs, an advanced operating system, and a high-resolution bit-mapped display. In fact, many systems can't even support this capacity.

**When will the Lisa be shipped for customer delivery?**

June 1983.

**When will Apple be in full production?**

Apple will be in full production with the Lisa in June 1983.

**How will this product be positioned vis-a-vis other Apple products?**

The Lisa is a full-function personal computer for the office. The Apple //e is a low-cost, versatile, general-purpose system. The Apple /// is a more powerful, general-purpose computer aimed at the small business and professional markets.

**Will the Lisa be compatible with any other Apple machines?**

There are different levels of compatibility. The Lisa won't run Apple //e and Apple /// software directly because it is based on a different, more powerful central processor. However, the Lisa does support Pascal and BASIC as do the Apple //e and Apple ///, so programs written in these languages can be easily ported from one system to another.

**What markets is the Lisa aimed at?**

The Lisa is aimed primarily at the office market. A secondary focus is small business.

**Are these Apple //e and Apple /// markets?**

The Apple //e and Apple ///, as general-purpose machines, also participate in these markets.

**How does Apple plan to position its product line in similar markets?**

The Apple //e, Apple ///, and the Lisa each offer different price and performance benefits. Several products in the same market need not lead to confusion; rather, Apple is offering a broad product line and allowing customers to choose the best system for their particular needs.

**Specifically, who are the targeted Lisa users?**

Office managers, professionals, executives, and administrative personnel who require a total office workstation, not just a word processor or spreadsheet tool, to make better decisions and communicate more effectively.

**What are the key user benefits of the Lisa?**

- **Ease of use** through graphics and mouse technology
- **More effective communications and decision-making** through powerful, integrated software tools supported by a sophisticated CPU, lots of memory (1 megabyte), and mass storage.
- **Room to grow** with open-ended software architecture, expansion slots, and input/output connections.

**What machines are the Lisa's key competitors?**

Other personal computers aimed at the office market: specifically the IBM Personal Computer, and product offerings from Wang, DEC, and Xerox.

**What is the Lisa's competitive advantage over these systems?**

- The Lisa is dramatically easier to use.
- The software applications are more powerful than their competitive counterparts.
- Few, if any competitors, have project scheduling or graphics editor equivalents.
- The Lisa has more power and capacity to handle larger tasks.
- The Lisa has a better hardware foundation (an advanced MC68000 CPU, and 1 megabyte of memory).

**Has the Lisa lost its "window of opportunity" owing to introduction delays?**

No. The Lisa is a revolutionary product providing a level of software integration never before attained in a personal computer. Since nothing else on the market comes close to this functionality, the Lisa will certainly be very competitive.

**Specifically, what technical advances does the Lisa represent?**

A radically innovative user interface and application integration yielding an easy to use and powerful system at a desktop price.

**Is it new technology or competitor's technology?**

Apple has taken the fundamental concepts that Xerox pioneered, enhanced them,

and delivered them cost-effectively to the office end-user. Specifically, we developed a new operating system, a graphics package, and novel applications to produce a total office system for the knowledge worker. We also applied Apple engineering and manufacturing know-how in order to mass produce an extremely complex computer.

**What microprocessor is used in the Lisa?**

The MC68000 -- one of the most advanced CPUs invented.

**What other state-of-the-art hardware exists in the Lisa -- drives, chips, etc?**

The floppy disk drives were developed by Apple to achieve high density and high reliability. There are a total of **four microcomputers** in the machine: one dedicated to the disk drives, one controlling the keyboard, another to aid the 68000 in decoding keyboard and mouse signals and to keep track of the time of day, and, of course, the 68,000. There is a **sophisticated communications chip** in the Lisa, allowing the system to work with a wide variety of modems, printers, and other computers. There is also a **hardware memory management** unit, a circuit that lets the machine run many programs at the same time.

**What were the reasons for choosing each?**

See Hardware Questions and Answers to follow.

**What operating system runs on the Lisa?**

The computer uses the proprietary Lisa Operating System which was designed especially for the innovative user interface. The machine can support others, however, and CP/M and Xenix will be available.

**Why did Apple choose this operating system over others?**

The Lisa Operating System was designed to support the user interface. Examples of Lisa-specific features include a highly redundant file system to ensure reliability and a mechanism called "non preemptive scheduling" that coordinates the way multiple applications work together on the screen.

**What are its advantages?**

The Lisa OS is a single-user, multi-process operating system. It's designed to support the user interface as described above; it lets one person (single-user) do many things (multi-process) at once.

**What peripherals will be available with the Lisa?**

The Lisa uses the Apple ProFile 5-megabyte hard disk drive, the Apple Dot Matrix Printer, and the Apple Daisy Wheel Printer.

**What is the cost of these peripherals?**

A ProFile disk comes with every Lisa Office System; it's price is included in the system cost. Additional ProFiles are available at a suggested retail price of \$2,195 each. The Dot Matrix Printer retails for \$675, and the Daisy Wheel Printer lists for \$2,195.

**What application software will be available at introduction?**

The Lisa comes with six integrated software applications: LisaWrite, LisaCalc, LisaGraph, LisaDraw, LisaProject, and LisaList. A seventh application, LisaTerminal, enables Lisa to act as an ordinary terminal to communicate with other computer systems. LisaTerminal is available separately.

**How much will this software cost?**

The six applications are included with every Lisa system. LisaTerminal lists for \$295.

**What does the term "software integration" mean?**

Integration means that Lisa's applications share a common user interface, so that once you've learned one, you can learn the others more easily. Integration also means that you can move information from one application to another (to graph the results of a spreadsheet analysis, for example) and between Lisa and other computers.

**Specifically, what software is integrated?**

In the sense of a common user interface, all the software is integrated. In the sense of passing data among applications, LisaCalc can move data to LisaGraph, LisaWrite and LisaTerminal; LisaGraph can move graphs to LisaDraw; LisaProject can also move charts to LisaDraw; and LisaTerminal can move information to and from LisaWrite. In addition, most documents of the same type can exchange data, so one can pass information between different LisaWrite documents, for example.

**If some software is not integrated, why not?**

Certain aspects of integration don't make sense, such as moving a pie chart into a LisaCalc cell. Additional integration, such as moving graphs into LisaWrite, will be supported in future releases.

**Will this software be integrated eventually?**

Yes: the meaningful forms of integration will be implemented.

**Was the current Lisa software developed in-house?**

Yes.

**Is there a master plan for what kinds of software have been and will be developed for the Lisa? What is it?**

Yes. We are committed to providing additional general-purpose hardware and software for the office market. Areas of development include enhancing existing applications, developing new ones, and creating network products and software development tools.

**Are outside software developers developing software for the Lisa?**

Yes, some outside developers have been involved for over two years.

**Who are some of these developers?**

Microsoft (Xenix), and Digital Research (CP/M), BPI (Single-user Accounting), Open Systems (Multi-user Accounting).

**What kinds of software are they developing?**

These companies are developing additional languages and operating systems, as well as applications for the small business market.

**When will this software be available?**

The first of these products will be available when the Lisa begins shipment.

**What has been Apple's relationship with Lisa software developers?**

Apple has had an excellent track record with software developers for the Lisa. We've released preliminary manuals and have had Technical Support Engineers available for software support for almost two years prior to announcement.

**What software is being developed by Apple? By third-party developers?**

Apple has chosen to concentrate on developing application and system software most vital to the office market. We are looking to third-party developers to provide software for more specialized segments of this market and for other markets, such as the scientific and engineering markets.

**Who will be selling the Lisa system?**

We'll be selling the Lisa through designated Apple Personal Office Systems Dealers as well as through Apple's National Account program.

**Are there any changes in your distribution system?**

The distribution mechanism that will support the Lisa has been in place servicing Apple//e and Apple /// products for quite some time.

**Will a direct sales force be used?**

The National Account Program is similar to a direct sales force. Apple account execs call on major accounts and coordinate the sale and service of equipment through the dealer base.

**How many National Account Representatives will be involved?**

Apple currently has 65 National Account Program Executives in the field.

**How many dealers will be prepared to sell the Lisas?**

About 147 (in the U.S. and Canada).

**What are the sales projections for the Lisa in '83, '84?**

This is confidential information. It is company policy not to publicly discuss sales projections.

**How will the Lisa sales affect the A//e and A///?**

Overall, the Apple //e and Apple /// product lines should be positively affected by the Lisa, as customers realize the strength of Apple and its commitment to the office marketplace. Some customers may find that they prefer the Lisa, but others will be drawn toward Apple because of the comprehensive range of products.

**What are current A//e sales? A/// sales?**

This is confidential information. It is company policy not to publicly discuss sales figures.

**Will the expected MacIntosh product compete with the Lisa? Will MacIntosh be compatible with the Lisa?**

Apple has many ongoing research and development efforts. One of these is a project code named "Macintosh". It is company policy not to publicly discuss research projects before they are available in the marketplace.

**With the Lisa and the Apple /// selling into the same markets, will the Apple /// remain a viable machine?**

The Apple /// is certainly a viable product. Although it doesn't have the innovative Lisa user interface, it does support the important office tools of a conventional personal computer at a lower price than the Lisa. It also provides users with a wide array of peripherals and software for small business and other markets.

**Why didn't Apple introduce the Lisa when it can ship?**

We set the future direction of the company at the annual shareholders' meeting. In addition, third-party developers are being encouraged to consider the Lisa in their plans.

**What products will be available at ship-time?**

The Lisa Office System and applications plus LisaTerminal, three development languages (Pascal, BASIC-Plus, COBOL), the Dot Matrix and Daisy Wheel Printers, and the Parallel Interface Board. Additional software (from third-party developers) may also be available.

**Has Apple had to scale down what they wanted to put into this machine?**

No. In fact, the Lisa product announced this year has many hardware and software features that weren't planned three years ago.

**When will AppleNet be available?**

Late 1983.

**When will 3270 products be available?**

The Apple Cluster Controller is available immediately, and will allow both 3270 Bisynch and 3270 SNA communications for up to seven Lisas, A//e's, and A///'s. Lisa's dedicated 3270 products will be available later in 1983.

**When can new developers get machines?**

Developers will get high priority in the early stages of production.

**When and where can I see a the Lisa?**

At your local Apple Personal Office System Dealer.

**How can I get more information about the Lisa?**

Contact an Apple POS Dealer. Customers interested in the National Account Program should contact their nearest regional Apple office.

# Hardware Questions and Answers

## **What processor does the Lisa use?**

The Lisa uses the MC68000: one of the most advanced microcomputer chips made. The 68000's instruction set enables it to support sophisticated operating systems and high level languages, and it's comparable to many mid-size computers in speed and power. Incidentally, the Lisa contains three other processors besides the 68000 which are used to perform various input, output, and control functions inside the system.

## **Is the 68000 a 16 bit or a 32 bit processor?**

The MC68000 can be considered both a 16-bit and a 32-bit machine. It has 32-bit internal data paths, and most instructions manipulate 32-bit data, so a single machine instruction can deal with a lot of information. The external data path is 16-bits wide.

## **How much memory does the Lisa have?**

The Lisa contains 1 megabyte of memory (1 megabyte = 1024K bytes = 1,048,576 bytes). The memory contains extra cells, called "parity bits", to enhance reliability. The Lisa was designed with an address space of 2 megabytes, so we'll have the option of doubling the Lisa's capacity in the future.

## **Does the Lisa have memory management?**

Yes. Memory management is a hardware circuit that makes it easy for a computer to run many programs simultaneously. The programs don't run exactly at the same time, rather, the processor switches from one program to another so quickly that it appears that it is doing many things at once. Memory management allows a user to keep several documents on the screen at the same time, to work on one document while another is printing, and to generally mimic an office environment where individuals often do many things at once.

## **Is the Lisa a multi-user system?**

The Lisa Office System was designed to work the way people actually work. That is, instead of designing a system that allowed many people to do one thing, we designed a system that allows one person to do many things at once. However, third-party vendors are developing multi-user operating systems that will enable many people to use the Lisa simultaneously.

## **What's so great about a bit-mapped display?**

The bit-mapped display allows the Lisa to show great graphics on the screen: it makes the sophisticated user interface possible and allows the Lisa to display many typstyles on the screen at the same time. Without a bit-mapped display, the Lisa would be constrained to the 80-column, text-only realm of traditional computers.

## **Why doesn't the Lisa have a full-page display?**

The Lisa's high-resolution bit-mapped display conveniently shows a half page. Apple felt that a half page is a sufficient size because users can scroll to any portion of a document quickly. In addition, several applications allow "split windows" whereby one can view several portions of a document simultaneously. A full-page display would be very expensive, and it would also increase the amount of space the Lisa occupies on a desktop.

**What is the screen resolution?**

Lisa has a high-resolution display that allows it to form sharp graphical and textual images. The screen is composed of over 262,000 dots organized as 720 columns of 364 lines each. There are 90 dots per inch horizontally and 60 dots per inch in the vertical direction.

**Why did Apple use a black-on-white display? Isn't amber or green-on-black better for your eyes?**

The research done in Europe on the ergonomics of CRT displays showed that what bothered people's eyes was the **contrast** between the black on white paper they were using and the white on black CRT display that most terminals had. To lessen the contrast, green or amber on black was chosen, but the research showed that black on white displays would be best, provided that the white on the CRT wasn't too bright. So we designed for this best condition: black on white on the CRT to match the black on white paper, which is easier on the eyes than green or amber.

**Why doesn't the Lisa have a color display?**

A color display, of the same resolution as Lisa's black and white display, would be **extremely expensive**, adding over 30% to the retail price to retain the high performance.

**Why did you choose the mouse as the key to the user interface, rather than function keys, touch-panel displays, or other devices?**

Seeing and pointing is much faster than thinking and typing. The mouse allows one to point to a menu or icon to quickly control the system. Function keys, on the other hand, force the user back to the keyboard, to hunt and peck for the right key. Also, one always runs out of function keys, and programs often resort to shift key combinations, plastic keyboard overlays, or key definitions on the screen which confuse the user. Touch panel displays are better, but they're still difficult to use. One has to hold a hand up to the screen, which can be very fatiguing after a long day using the system. We think the mouse is the fastest, most comfortable, and easiest pointing device invented.

**What kinds of mass storage does Lisa support?**

**Floppy disk.** The Lisa contains two built in floppy disk drives. The floppies are of an Apple proprietary design, the goals of which were high density and reliability. Each floppy disk can store over 851K bytes of information, more than 300 pages of text. Diskette loading and ejecting is controlled by the computer, so users can't accidentally destroy information by removing diskettes at the wrong time, as is the case with conventional disk drives.

**Hard disk.** The Lisa uses the Apple ProFile hard disk. The ProFile stores 5 megabytes of information, and it connects directly to the Lisa's built-in parallel port. Additional ProFiles (up to 7 total) may be added by connecting them to optional Parallel Interface Boards.

**How can the Lisa connect to external devices?**

The Lisa supports the two standard types of device connections: serial and parallel.

**Serial ports.** The Lisa contains two built in serial ports to connect to serial devices such as the Apple Daisy Wheel Printer and modems. The serial ports support both synchronous and asynchronous protocols at a variety of data rates,

as well as full auto-dial/auto-answer capability

**Parallel port.** The Lisa has one built-in parallel port to connect to devices such as the Apple Dot Matrix Printer or the ProFile hard-disk drive. There is also a Parallel Interface Board that can plug into one of three expansion slots. Each Parallel Interface Board contains two additional parallel ports, so systems with both a dot-matrix printer and a ProFile use a Parallel Interface Board.

**Can I add additional boards to the Lisa?**

The Lisa has three slots for peripheral expansion boards. These slots can support future peripheral devices. The Parallel Interface Board noted above can reside in one of these slots.

**Does the Lisa have a clock?**

Yes. There is an Apple-designed circuit inside the machine that keeps track of the day and date. The clock can also control the power supply (it runs off of a standby source, like an instant-on TV), turning on the system at a preset time. Future software packages may take advantage of this feature.

**Is there any protection against power failures?**

The Lisa contains a battery circuit that keeps the clock and certain critical areas of memory "on" for over 24 hours after a power failure. The system will go down, but the time of day and other critical information will remain intact. The Operating System uses a highly redundant file structure to protect against mishaps. Although some data may be affected, the Operating System can often reconstruct most of a disk damaged by power failures or even improper handling.

**Describe the Lisa power supply.**

The Lisa power supply is based on a "switching circuit" design that is highly efficient. It was designed to operate over a wide range of voltages and line frequencies.

**Can the Lisa generate sound?**

Lisa has a built-in speaker and driver circuit that can be used to emit tones of different frequencies. In addition, the volume of the speaker can be programmed by software.

**What kinds of peripherals are available for use with the Lisa?**

Currently, the Lisa supports the Apple ProFile hard disk drive, the Apple Dot Matrix Printer, and the Apple Daisy Wheel Printer and modems.

**How easy is it to take a Lisa apart for service?**

The system has been designed to be serviced without using a screwdriver. All components are modular so the system can be opened and any user-serviceable module replaced in a matter of minutes.

**What features to support ergonomics have been built into the machine?**

The Lisa screen supports black letters on a white background to reduce eye fatigue by reducing contrast changes between the system and normal paper in the work environment. The keyboard is detachable so it can be placed in a comfortable position. The system has no fan and is quiet in an office. The Lisa has a small "footprint" so it doesn't occupy a lot of room on a desktop. The mouse was designed to operate on any surface, even glass, so large mouse pads aren't

# Software Questions and Answers

## Organization

- **General**

- What's Available
- Integration
- Competition
- Learning

- **Applications**

- General
- Desktop Manager
- LisaCalc - Spreadsheet
- LisaList - Database
- LisaProject - Project Management
- LisaGraph - Business Graphics
- LisaDraw - Graphics Design
- LisaWrite - Word Processing
- LisaGuide - Interactive Tutorial
- The Calculator and The Clock

- **Languages and Development**

- General
- Languages
- Operating Systems

## What 's Available

### **What applications are available with the Lisa?**

Lisacalc, LisaList, LisaProject, LisaWrite, LisaGraph, LisaDraw, and LisaTerminal. In addition, a calculator and clock are provided. See General Questions and Answers.

### **What languages and operating systems are available?**

Pascal, BASIC-plus, and COBOL Level 2 are available, and other languages are under development. Lisa has an Apple-developed operating system, the Lisa O.S., and other operating systems will be available from Microsoft (Xenix, a version of Unix), and Digital Research (CP/M-68).

### **What small business software will be available on the Lisa at first release?**

The term "small business software" refers to accounting software that enables a small business to automate its bookkeeping/accounting operations. Two families of accounting software will be available on the Lisa in June 1983. BPI will offer General Accounting, Accounts Receivable, and Accounts Payable packages running in the Lisa Workshop environment. Open Systems will offer a separate set of seven accounting applications (Accounts Payable, Accounts Receivable, General Ledger, Inventory, Order Processing, Payroll, and Job Cost) and a report writer/data formatter all running under Microsoft's XENIX operating system. Open Systems' family of applications will also be available in June 1983.

### **Can I access remote data bases with the Lisa?**

With LisaTerminal, you can send and retrieve information to and from any database that can be accessed through asynch communications. For example, the Source, Dow Jones, Compuserve, etc., can all be accessed.

Also, corporate data bases residing on IBM computers can be accessed through the Lisa 3270 emulation products, to be available later this year. In addition, Apple and Cullinet have announced that they will be working together to allow a Lisa user to access a Cullinet database on a mainframe in an integrated (Lisa-like) manner.

### **Does the Lisa have an electronic filing system?**

The Lisa Desktop Manager is a powerful, effective electronic filing system. See the "Desktop Manager" section for more detail.

### **Can you do mailing lists with the Lisa?**

LisaList, our personal database product, can quickly and easily manage large lists such as mailing lists. It does not, however, have the capability of printing out to mailing labels or envelopes at this time.

### **Does the Lisa have a calendar program?**

The Lisa has a clock that shows the time and date. Calendar scheduling can be done with the date and calendar capabilities of LisaCalc, or with the project scheduling features of LisaProject.

### **Does the Lisa have a tickler system?**

Not at this time.

### **Can I create and save forms?**

You can create forms or templates with any of the applications by simply making your form into a "Stationery Pad." From then on, it will be saved like any other Lisa stationery. Conventional form creation, with fields that you tab between to enter data, is not available in LisaWrite, but this function can often be handled in LisaCalc.

### **Integration of the Applications**

#### **What applications can I use together?**

Any combination of Lisa "tools" can be used together, and all can be displayed on the Lisa screen at the same time.

#### **Between what applications can I cut and paste information?**

Data can be moved from LisaCalc to LisaWrite for inclusion in reports or memos, and to LisaGraph for plotting. Charts and graphs can be moved from LisaGraph and LisaProject to LisaDraw for customization. In addition, data can be moved from LisaCalc or LisaWrite to LisaTerminal, and data from LisaTerminal can be moved to LisaWrite. (Please note: LisaGraphics cannot be pasted into LisaWrite, as has been erroneously reported. The user can, however, create text in LisaDraw).

### **Competition**

#### **How does the Lisa compare to VisiON?**

The following are the major differences:

- **User interface:** The Lisa offers a better user interface, employing graphics to simplify the system's operations; VisiON glues together existing Visi-Series applications, and the result reflects a lack of solid integration.
- **Desktop Model:** The Lisa employs a very intuitive file system, with documents and folders. VisiON uses a conventional filing system.
- **Applications:** The Lisa applications are richer, more powerful, and more comprehensive.
- **Printing:** The Lisa offers unsurpassed printing. Period.

Note the following:

- VisiON is today just a demo, where the Lisa was two years ago. Today, the Lisa represents an investment of 200 man-years and \$50 million.
- VisiON will not necessarily be cheaper than the Lisa; it will probably require an IBM with lots of memory, a hard disk, graphics boards and monitors, etc., and could well end up costing more than \$10,000.

#### **How does the Lisa compare with 1-2-3?**

Ben Rosen's Newsletter described 1-2-3 as an evolutionary product - essentially a spreadsheet package like VisiCalc with enhancements. For spreadsheet-type applications, it is a very powerful tool, particularly for today's conventional computers. The Lisa, however, is a revolutionary general-purpose office tool with a wide range of applications. There is no comparison between the two in the areas of ease of use, graphics, capacity, printing, communications, and growth opportunities.

## Learning Lisa Applications

### **What is the best Lisa application to start with?**

Any. LisaGraph is quickest, but the user should probably start with the program they will use the most.

### **How much time will I need to feel comfortable with the Lisa?**

Our testing shows that new users, once they have gone through LisaGuide (which takes 30-60 minutes), can learn to use each application well enough to do useful work in about 1/2 hour. Mastering the applications, of course, depends on how frequently you use the Lisa, but it will be much faster than with conventional computers.

### **You claim that you can learn the Lisa applications in 1/2 hour? How do you know?**

We've done extensive testing of both the software and the documentation. We've found that the mean time to completing the "Getting Started" tutorial for each application was less than 30 minutes. These studies included a short test at the end of the tutorial to make sure that each user had learned enough about the application to do work on his own. Apple does not, however, claim that every user can accomplish this in 30 minutes.

### **What documentation is available with Lisa?**

Each application comes with a brief tutorial called "Getting Started" which will teach you the basics of that application in about 1/2 hour. In addition, there is a complete example-driven tutorial and a complete reference guide. The Lisa system comes with LisaGuide, an interactive tutorial that teaches the global basics of the Lisa user interface. There is a complete Owner's Guide, that includes installation, maintenance, and troubleshooting information.

## Desktop Manager

### **What is the Desktop Manager?**

The Lisa's Desktop Manager is a powerful, effective electronic filing system. It uses "icons" (or pictures) of documents and folders to mimic your own filing system, while providing tremendous power to organize and reorganize your files quickly and easily. Filing a document into a folder is as easy as pointing at the document with the mouse and moving into the folder, just as you now pick up your documents and place them in a folder.

### **Why is this better than conventional filing systems?**

First, because you don't have to learn or remember filing commands, syntax, file names, etc. Second, you point to a document to open it, close it, file it away, discard it, etc., rather than typing in a command -- i.e., you do it the way you currently do with real paper and folders. Third, it dramatically improves your efficiency. Using the mouse to point is much faster than typing commands and file names, and filing is one of the most common and frequent tasks in the office. Finally, it is easy to organize your documents exactly as you want - in folders, in folders within folders, etc.

### **How many folders and documents can I have?**

As many as you need. You are given a "pad" of empty folders, and you can "tear off" new folders from this pad whenever you want. Likewise, you have a "stationery pad" from which you create new documents of any type at any time.

**What administrative information does the Desktop Manager provide?**

Name of document, date created, date last modified, and size.

**How do I protect classified information?**

The safest means is to store classified material on Lisa diskettes, and then lock the diskettes away. There is, at this time, no password protection in the Lisa.

**Spreadsheet/LisaCalc**

**How large a model can I use with LisaCalc?**

255 rows by 255 columns.

**What significant competitive advantages does LC have over popular spreadsheet programs such as VisiCalc, SuperCalc, and Multiplan?**

- Larger capacity (255 x 255 vs. conventional 256 x 64).
- Radically easier to use (menus vs. cryptic commands, mouse to move around quickly, screen = printed copy).
- Printing (can get 132 columns on conventional 8.5 x 11 inch paper using 15 pitch and horizontal printing format).
- Integration with graphics and word processor.
- Special features for scheduling and financial analysis (15-digit precision, NPV, annuity, compound function, dates, durations, built-in calendar).
- More powerful formula-generation capabilities (e.g., you can make a multiplication table in one simple formula, vs. multi-formulas in VisiCalc).
- Other special features: protection, display and print formulas, circle missing values to aid in data entry, multiple typestyles, manual and/or automatic page breaks, variable column widths, replication of any rectangular range (vs. standard replication of only one-dimensional ranges), splitting the window into multiple views, more flexibility in formatting (e.g., display currencies).

**Why isn't graphics integrated into LisaCalc directly?**

Moving data from LisaCalc to LisaGraph is fast due to the Lisa's large memory and powerful CPU, and is easy because of the system's revolutionary user interface. For example, moving information from VisiCalc to VisiPlot typically takes 5 minutes and 25 steps--with Lisa, it takes about four steps and as little as 15 seconds.

**Can you consolidate models?**

Since LisaCalc supports very large models on one spreadsheet, many problems that require multiple spreadsheets on conventional personal computers can be brought together in one LisaCalc document. You can also have more than one model showing on the screen at one time and then copy and paste information between them if desired.

**Is LisaCalc compatible with VisiCalc on the A//e or the A/// ?**

LisaCalc and VisiCalc share many of the same functions and formulas. This means that it will be easy to port your Apple //e or Apple /// VisiCalc models over to LisaCalc. There is not, however, any mechanism for doing this automatically. We expect third-party developers will provide an automatic mechanism for transferring VisiCalc models to Lisa.

### **How fast is LisaCalc?**

For small models the speed of LisaCalc is similar to the speed of VisiCalc. For large models, LisaCalc is faster than other spreadsheet programs. LisaCalc performs calculations using the IEEE floating point standard, which gives it accuracy unmatched by other spreadsheet programs.

### **What functions are available?**

Average, count, max, min, sum, sum of squares, absolute value, square root, natural log, base 10 log, exponentiation, sin, cos, tan, asin, acos, atan, integer, round, present value of an annuity, compound interest, NPV, IF-THEN-ELSE, lookup, search.

### **Do I have to use the mouse to move around?**

No. You can use the arrow keys on the numeric keypad.

### **Do I have to type in the coordinates of a cell when building a formula?**

No. You can point to the cell with the mouse, hold the option key, and press the mouse button. The coordinates of that cell will automatically be entered in the formula.

### **How do you compare figures from two years LisaCalc?**

This is very simple. If the figures are in the same document, you can use LisaCalc's "split-window" feature to view two parts of the model at once. If the figures are in two separate documents, you can easily display both documents on the screen at the same time.

## **Database/LisaList**

### **Does the Lisa have a database program?**

Yes, LisaList. Its capacity is about 4 megabytes (e.g., 4000 records of 1000 characters each), which is much greater than database programs available on conventional personal computers. You can sort on any fields (ascending or descending), and search on any fields (various types of comparisons are available such as >, <, =, etc.).

### **How does LisaList compare to other database programs?**

LisaList is more flexible in revising, searching, sorting, and displaying information.

LisaList has more capacity, so you won't run out of room for your data.

LisaList is very fast in comparison to micro-database systems. It can do things in seconds that would take minutes using some other micro systems.

LisaList has built-in protection mechanisms for you data (e.g., data recovery mechanism in case of a crash; data entry checks; undo and restore-to-last-saved-version commands).

Powerful editing capabilities (including adding or deleting columns).

### **How large a list can I have?**

LisaList's capacity far outstrips that of other end-user database products on conventional personal computers. The list can be up to the size of a disk (about 4 megabytes). The maximum number of columns is 100 and the maximum size row is 1000 characters.

**Can I do column or row arithmetic in ListList?**

Activities that are mathematically intensive can use the powerful calculation capabilities of LisaCalc, or Lisa's built-in multi-function calculator. LisaList is more suited to the thousands of applications that do not require calculations. We are, however, planning on incorporating such capabilities in a future release of LisaList.

**What type of reports can I do in LisaList?**

You can print out many different lists by making columns visible or invisible, re-ordering the columns, and by specifying which rows should be displayed via the powerful search capabilities.

**Can I sort on numeric and alphanumeric fields?**

Yes. In addition, you can sort on dates, times, phone numbers, social security numbers, currencies, and zip codes.

**What kind of sort limitations are there?**

None—you can sort on every field by specifying primary sort field, secondary one, etc.

**Can I merge files?**

LisaList is a single-file system. However, its large capacity, plus the ability to generate sublists, reduces the need to keep different files.

**Is LisaList a relational data base? Does it support indexing?**

Yes and Yes. The index is built on the first field (its a B-Star index type), but sorting and searching can be done on any field.

**Project Management/LisaProject****How does LisaProject compare with other scheduling programs?**

There are none like it. LisaProject is much easier to use because of its graphics interface and the tremendous flexibility in editing any part of the schedule. Its large capacity is also unparalleled for microcomputers. Unique features include:

- Ability to specify specific individuals to work on tasks.
- Zoom function to see the entire project at once.
- Manual override for task and milestone dates.
- Multiple start and end nodes for very complex projects.
- Easy to print out large projects.
- Quality printed output suitable for presentations and reports.
- Integration with LisaDraw to customize charts as required.

**Is any prior knowledge of project scheduling techniques, such as PERT (Project Evaluation and Review Technique) required to use LisaProject?**

No. While LisaProject is based on PERT, anyone that has every managed a project or a schedule with paper and pencil can use LisaProject.

**Does LisaProject take resource constraints into account?**

Yes, it does. For example, it will not allow a resource, such as a person, to be used on different tasks at the same time. Constraints on resources such as materials, however, are not available.

**Can I merge different project schedules?**

No, but LisaProject's large capacity and the ability to set dates for any task or milestone make having different schedules unnecessary. For example, if Project A and Project B are independent except that B requires task 10 of A to be finished before starting its task 20, then the user can model this two ways: put A and B in the same document with separate start and end milestones, and tie task 10-A and task 20-B together. Or, have two separate documents, put in a milestone in project B that says "Task A-10 Finished," and set its completion date to the calculated completion date of Task 10 from Project A's schedule.

**Can I input information about resource costs?**

LisaProject does not associate any costs with the schedule.

**Does LisaProject figure out the optimum schedule?**

Yes, if the same resources are not used in parallel tasks. Otherwise, the schedule may not be optimum.

**Can I have the same person working on more than one task at a time?**

LisaProject assumes that a resource is devoted fulltime to its tasks. If this is not the case, then split the two up (e.g., Joe Smith-1 and Joe Smith-2).

**Does LisaProject figure the critical path?**

No, it does not. It determines critical resources, and from these resources determines a feasible schedule. If no resources are required by two tasks at the same time, then this schedule will be an optimum schedule. Otherwise, the user can use the "set schedule dates" feature to change the allocation of resources to determine a more optimum schedule.

**Business Graphics/LisaGraph****How does LisaGraph compare with competitive products?**

- LisaGraph is much easier to use, particularly because the data and the graph are seen together.
- LisaGraph plots data instantly - there is no waiting.
- Plotting data from your spreadsheet models is faster and easier than competitive products.
- Integration with LisaDraw allows for total graphics customization.
- Printing quality surpasses that of other graphics packages.
- The wide selection of tpestyles for titles and annotations is unsurpassed.

**Can I do statistical analysis or curve fitting in LisaGraph?**

No, but the user can easily use LisaCalc or the Calculator for some statistical analysis.

**When I copy from LisaCalc to LisaGraph, do the formulas go along?**

No, only the values. If you need to recalculate and replot your data, you should go back to LisaCalc, recalculate, and then copy the new data into LisaGraph. This is a very fast and easy technique (about 4 steps and as little as 15 seconds).

**Is a graph drawn from a LisaCalc model automatically updated when the LisaCalc model is changed?**

No, the new values must be recopied to LisaGraph.

**How do I mix line and bar graphs?**

Choose "Bar" from the Graph menu. Select the column(s) of data that you want to be shown with a line. Choose "Show as Line" from Customize menu.

**Can I transpose data or plot it as rows rather than columns?**

Yes. Select the columns of data. Cut. Select Row A. Paste. The data will be transposed from a column orientation to row orientation automatically.

**Are more types of standard graphs, such as stacked bar charts, planned in the future?**

A desirable extension of LisaGraph would be to add more graph types.

### Word Processing/LisaWrite

**How does LisaWrite compare with other word processors?**

Very favorably. Major advantages include:

- Much easier to use in creating and editing text--just point with the mouse to where you want to insert new text or to text you want to change
- Much easier to format text - there are no formatting codes to remember, and LisaWrite's "what you see is what you get" fidelity means that all formatting is done on the screen, so you don't have to guess at what your final paper is going to look like.
- Integration--easily and quickly cut and paste information from LisaCalc, LisaTerminal, or other LisaWrite documents.
- Printing flexibility and quality is unsurpassed, and it is the final output, after all, that people will see. Examples of flexibility: combine multiple timesteps--including proportional spaced fonts, large presentation sizes, small 15 pitch sizes, as well as standard Courier and Elite, and add bolding, italics, and underlining; print horizontally or vertically (i.e., portrait and landscape); use special characters, such as bullets, accented letters for foreign names or terms, technical symbols, etc.; print bold, italics, and regular timesteps on the Apple Daisy Wheel printer without changing printwheels; print 10-pitch, 12-pitch, or proportional spaced text without changing printwheels; and more! The quality of output from Apple's Dot Matrix Printer is unsurpassed for a low-cost printer, and provides correspondence-quality text as well as graphics.
- Tremendous formatting flexibility (e.g., 4 types of tabs, 4 kinds of line spacing, 11 timesteps plus bold, italic, underline, superscript, subscript).

**Can I move text from an Apple //e or Apple ///, or other word processors, to LisaWrite?**

The user can copy information from LisaWrite to LisaTerminal and vice versa. Thus, any word processor that can send ASCII text asynchronously, as Apple Writer III can via Access III, can transfer text to and from LisaWrite. Some formatting information, such as tab stops, may have to be reentered.



## **The Calculator and The Clock**

### **What is the Calculator?**

The Lisa supplies a calculator for doing simple arithmetic using +, -, \*, /, square root, percentages, and reciprocals. It also has one memory register. The Calculator offers three kinds of notation: standard four-function, adding machine, and RPN (Reverse Polish Notation, as used in HP calculators).

### **What is the clock?**

The Lisa has a built-in clock to keep time of day and the date. The user may change the time and date by simply selecting those figures and typing over them.

## **Development Software**

### **What languages are available?**

Pascal, BASIC-Plus, and COBOL will be available at first release. Other languages are under development.

### **Describe the Pascal on the Lisa.**

Pascal on the Lisa is an extension to International Standards Organizations Pascal. The Lisa Pascal will be available for customers about a month after first release of the Lisa.

Differences between A//e and A/// Pascal and the Pascal on the Lisa are documented in the manual. Pascal on the Lisa compiles to native 68000 code for fast execution. Standalone Pascal applications can be written to incorporate mouse movements as input and to output graphics.

The BPI accounting package is an excellent example of a standalone Pascal program that uses the Lisa graphics-mouse technology.

Of course, full integration of programs into the desktop environment will require the Toolkit. Applications written in Pascal can use the same software protection scheme used for the Office System. A utility to transfer source code from other machines is also a utility included in the Workshop.

The Pascal product includes Pascal, the assembler, the linker, mouse editor, workshop utilities, and the workshop shell. Also included is complete documentation for Pascal, the graphics package called QuickDraw, the mouse interface, the Workshop, the Lisa O/S, and the MC68000.

### **What kind of BASIC will run on the Lisa?**

At first release, BASIC will be interpreted. The BASIC-Plus product includes BASIC-Plus, the mouse editor, Workshop utilities, and Workshop shell, as well as documentation for BASIC-Plus and the Workshop.

### **What kind of COBOL will run on the Lisa?**

COBOL programs are interpreted. The COBOL product includes COBOL, the mouse editor, Workshop utilities, and Workshop shell, as well as documentation for COBOL and the Workshop.

### **Why are development tools important?**

The available Lisa applications are designed to offer good general capabilities, such as word processing and business graphics. However, users often need very specific tools (also called vertical applications) for their business or professional computing. These vertical packages can be built using the available development tools on the Lisa.

### **Who can use the languages?**

There are three different groups of people who can build applications with the languages on the Lisa:

- The single user who is comfortable with programming can write programs for the Lisa or move them from their personal computers, such as the Apple II or Apple III.
- The large company with an internal data processing staff can write or port programs so that they run on the Lisa. Typically, such programs would be for internal use within that company and would not be publicly available.
- Independent software developers can offer software packages to single user or to large companies. Apple has been supporting the development of such packages (see the section on Independent Software Developers). Software developed by independent vendors is typically built, sold, and supported by the vendor, not by Apple.

# **Independent Software Developers**

## **Questions and Answers**

### **What types of support will you have for Independent Software Developers (ISDs)?**

AT FIRST SHIPMENT WE WILL BE PROVIDING AS MUCH OR MORE DEVELOPMENT SUPPORT AS ANYONE ELSE IN THE INDUSTRY DOES TODAY. THE LISA WILL BE AN OPEN SYSTEM. We will provide at first shipment:

- Pascal which will produce native 68000 code
- COBOL Level 2
- BASIC-Plus, a BASIC very similar to DEC'S BASIC
- An editor, plus about 20 utilities

We expect several other languages also to be available at first shipment or soon thereafter and will encourage others to be implementing other languages.

### **What operating systems will be available?**

We have our own operating system for the Lisa, plus Microsoft will offer Xenix (a version of UNIX) and Digital Research will offer CP/M68.

### **How will all this work in the Lisa integrated office applications?**

The integrated system runs in its own environment. For now, users will switch between the integrated office environment and a traditional development environment we call the Workshop. However, we have made it easy to switch back and forth.

### **How can I write software to integrate into the office environment?**

We are working on a system called the Developer's Toolkit which will be released by the end of the year. The Lisa office environment is very sophisticated and has taken us years to develop. The office environment relies heavily on shared files and shared code. We are repackaging our own tools into the Toolkit so that independent developers will not have to invest years writing for the Lisa.

### **So what can I do before the Toolkit?**

First, you can easily move existing applications from other hardware like Apple //, ///, IBM PC, etc., to Lisa to run under our operating system, XENIX, or CP/M. So for now, users who buy a Lisa will run your application outside the integrated office environment in a mode just like they have on any other computer, but in a manner which is simple and straightforward.

Second, you can begin preparing for the release of the Toolkit by learning Pascal. The Toolkit will support Pascal because all our Lisa applications are written in Pascal.

### **How do I get a machine and when?**

The Lisas will be available to independent software developers at first shipment (Spring 1983). Developers will be given high priority. ISDs can place their orders with authorized POS Dealers. We have published a more detailed description of our program to support ISDs.

# **Small Business Software Questions and Answers**

## **What small business software will be available on the Lisa at first release?**

The term "small business software" refers to accounting software that enables a small business to automate its bookkeeping/accounting operations. Two families of accounting software will be available on the Lisa in August 1983. BPI will offer General Accounting, Accounts Receivable, and Accounts Payable packages running in Lisa's Workshop environment. Open Systems will offer a separate set of 7 accounting applications (Accounts Payable, Accounts Receivable, General Ledger, Inventory, Order Processing, Payroll and Job Cost) and a report writer/data formatter all running under Microsoft's XENIX operating system. Open Systems' family of applications will also be available in August 1983.

## **How do BPI's and Open Systems' accounting families differ?**

In general, BPI's accounting software provides a single user, entry level accounting solution for users interested in running an accounting system as an adjunct to the Lisa Office System. BPI's three accounting applications will run in the Lisa Workshop environment which can co-reside on the same ProFile as the Lisa Office System. A user, however, cannot transfer documents or files between the Office System and the Workshop. Once the Lisa Toolkit is available, BPI will integrate its accounting applications into the Lisa Office System so that they take advantage of Lisa's user interface features and, in addition, offer cut and paste with Lisa's office applications.

BPI's General Accounting application will probably be integrated into the Lisa Office System by the 1st Quarter of calendar year 1984. The other applications in their family (Accounts Receivable, Accounts Payable, Professional Time Accounting, Payroll, Inventory Control, and Job Cost) will be integrated during the remainder of 1984.

Open Systems, in contrast to BPI, offers single and multi-user timesharing accounting software running under the XENIX environment. Open Systems' accounting family is appropriate as an entry level to larger volume accounting solution for small to medium-sized businesses.

The term "multi-user timesharing" refers to a configuration in which Lisa's CPU is shared by a number of terminals connected to the Lisa over its serial ports. Microsoft (who supplies XENIX) and Open Systems (who supplies accounting software for XENIX) will specify which type of terminals can be used with Lisa's XENIX. The AII+, A//e, and A///, when configured with asynchronous communications software, can serve as terminals in a multi-user Lisa XENIX system.

The XENIX environment is incompatible with the Lisa Office System and Workshop. As such, the XENIX operating system and Open Systems accounting software must reside on a separate ProFile from Office System and Workshop software. No files or documents can be transferred between the Office System and the XENIX/Open Systems environment. This problem of incompatibility will be mitigated in the later half of calendar year 1983 as productivity applications (such as word processing and

# **International Questions and Answers**

## **Will Lisa be available abroad?**

Shortly after the Lisa is shipped in the U.S., it will be available for limited distribution with an international (220V) power supply in Europe and elsewhere. However, our international plans are far more comprehensive in scope: in very short order, we will offer a series of localized versions of the Lisa in each of the major markets of the world, each of them variants of a basic hardware and software architecture designed to make the Lisa **fully international** as well as **fully localized**.

## **When will your international products be available?**

Fully localized versions of the Lisa for the UK, France and Germany will be available in the summer of 1983. Other versions will follow progressively.

## **What do you mean by "fully localized"?**

As far as hardware, each localized version will have its own keyboard featuring the character configuration appropriate to that market. As far as software, all of Lisa's extensive and highly developed user interface will be translated, as will the comprehensive manuals and other documentation that make the Lisa unprecedentedly user-friendly. We also plan to accommodate local data conventions, such as localized formats for numbers, currency, dates, and time.

## **In what sense will localized versions also remain "fully international"?**

Any Lisa will be compatible with all localized keyboards; on being plugged in, each localized keyboard will "identify itself" to the computer. In addition, each keyboard has an option key which acts like a super shift to give access to a complete set of additional characters called the "Alternate Keyboard". It includes common mathematical symbols, but also **all of the foreign characters** (accents, letters) **found on any other localized keyboard**. For example, this will make it possible for a German-speaking user of the Lisa to draft a letter in German to a correspondent in France, with all of the right accents in both of their respective languages, **on an English Lisa**.

## **Does Lisa comply with international standards?**

The Lisa is designed to comply with IEC and VDE safety standards.

## **Will there be transferrability of documents among different localized versions?**

This point will be addressed in the formal introduction of the localized versions.

# **Data Communications Questions & Answers**

## **Overview**

### **What is Apple's data communications strategy for the Lisa?**

Apple intends to provide the Lisa with the capabilities to communicate with as wide a range of remote computers as possible. The ability for personal office computers to exchange information with other information systems is a central characteristic of the automated office.

### **What products will be available when the Lisa ships?**

LisaTerminal and the Apple Cluster Controller will be available at the same time as the Lisa. Other data communication packages will follow later during 1983.

## **LisaTerminal**

### **What is LisaTerminal?**

LisaTerminal is a software product that allows the Lisa to communicate using asynchronous protocol with other computers. Specifically, it allows the Lisa to emulate TTY, VT52, and VT100 terminals, giving the Lisa the ability to exchange data with remote computers. LisaTerminal is an integrated Lisa application, and is part of the Lisa Office System family of applications.

### **What Lisa Office applications is LisaTerminal not "integrated" with?**

LisaGraph, LisaDraw, LisaProject, LisaList.

### **Does LisaTerminal support synchronous modems?**

No, LisaTerminal only operates with asynchronous modems.

### **How will the Lisa interact with the Apple Cluster Controller?**

LisaTerminal, the Lisa's asynchronous communications application, will attach locally via direct cable or remotely, via communications lines, to the Apple Cluster Controller. LisaTerminal can be defined as a TTY or VT100 device to the Cluster Controller, which will convert LisaTerminal messages into IBM 3270 format and vice-versa.

### **Does that mean that a user can effectively "copy and paste" IBM host information with LisaWrite, or send LisaCalc text to the IBM computer?**

Yes.

### **What advantages does a LisaTerminal and Apple Cluster Controller combination provide the user?**

Using the Apple Cluster Controller, users can copy and paste or exchange information between IBM computers and the Lisa. In other words, data from IBM computers can be integrated with other Lisa applications.

### **What advantages does LisaTerminal have over ordinary terminals and display devices?**

LisaTerminal allows you to save, print, and use host information in other Lisa applications, such as LisaWrite.

## IBM Communications

### **What IBM communications capabilities will the Lisa have?**

Lisa will have 3270-BSC and 3270-SNA communications packages that will allow users to interact with other IBM computers. In addition, LisaTerminal used with the Apple Cluster Controller will allow cost-effective attachment of multiple Lisas to IBM computers.

### **When will IBM communications be available?**

The Apple Cluster Controller and 3270-BSC Communications Package will be available in the summer of 1983. The 3270-SNA Communications Package will be available shortly after that.

### **Which models of the IBM 3271 will the 3270-BSC package emulate?**

The BSC Package will emulate an IBM 3271 Model 2 running one 3277 display.

### **Which models of the IBM 3274 will the 3270-SNA Communications Package emulate?**

That product will emulate the IBM 3274 Model 51C running one 3278 display.

### **Can you multidrop Lisas running the IBM Communications Packages?**

Yes.

### **Will the IBM 3270 Communications Packages be hardware or software?**

The products are software programs. Communications hardware has been built into the Lisa.

## Miscellaneous

### **Does the Lisa have a built-in modem?**

No. Users will have to acquire their own modems in order to use the Lisa data communications products.

### **How does a customer order Lisa data communications products?**

See your local Apple Personal Office System Dealer or Apple sales representative.

# AppleNet Questions & Answers

## Marketing Questions

### **Who will market AppleNet?**

At first release, AppleNet will be marketed by both Apple Personal Office System Dealers and Apple National Account Executives.

### **Who will install AppleNet?**

AppleNet will be installed by Apple Personal Office System Dealers, RCA Service, and Customers.

### **When will AppleNet be available?**

AppleNet was introduced (demonstrated) at the National Computer Conference in Anaheim May 16-19, 1983. AppleNet will be available in phases to end users in late 1983. The first deliveries of AppleNet will connect the Lisas together on AppleNet. Several months after initial shipment AppleNet for the A//e and A/// will be available.

### **What Apple products will be supported on AppleNet?**

Apple //e, Apple ///, the Lisa, as well as all future Apple products.

### **When will the AppleNet protocols be published?**

When AppleNet is available for shipment, the protocols which are available at that time will be published.

### **What will be the arrangement for developers to get access to the protocols?**

With the payment of a minimal licensing fee (approximately \$500.) Apple will provide the 3rd party developer with hardware and software specifications for AppleNet. These specifications will contain enough information to allow development of both network applications and AppleNet interfaces to other vendor's products. Apple will provide a Xerox Network Systems InternetTransport protocols toolkit for the Apple //, Apple ///, and the Lisa.

### **When will there be servers (such as File Server, Print Server, Communication Server) available on AppleNet?**

It is Apple's intention to introduce these servers in phases over the next two years. The first server to be offered will be the file server which allows common user storage of files on large capacity hard disks.

## Compatibility Questions

### **Will AppleNet be compatible with Corvus Omninet?**

No.

### **Will AppleNet be compatible with Nestar Cluster/One or Plan-4000?**

No.

### **Will AppleNet be compatible with Ethernet?**

AppleNet hardware is not compatible with Ethernet.

AppleNet protocols are compatible with the Xerox Network System Level 1 and 2 protocols. AppleNet will be able to run its transport protocols on either AppleNet or Ethernet. Apple products will communicate on Ethernet through the Apple Ethernet interface.

**Can files created on an Apple // or /// be transferred to the Lisa?**

It is Apple's intention to provide the capability to eventually transfer "text" (ASCII) files across all its product lines.

**Technical Questions**

**What is the maximum cumulative length for the Network cable ?**

2000 feet.

**What is the maximum length of the drop cable?**

100 feet.

**How many Cluster Boxes can be connected?**

Up to 32 Cluster Boxes can be connected per 2000 feet of Network cable.

**Is there a minimum distance between Cluster Boxes?**

No.

**Is there a maximum distance between Cluster Boxes?**

Yes, 2000 feet.

**How many devices can be attached to one Cluster Box?**

Up to 4 devices.

**Can you attach different systems (i.e. Apple //, Apple ///, Lisa) to one Cluster Box ?**

Yes.

**Are the Cluster Boxes active or passive?**

The Cluster Box is totally passive.

The first release of AppleNet, available late 1983, will provide document transfer and shared printing between Lisas. When AppleNet support of the Apple // and Apple /// is available these products will be able to transfer files and share printers on the network. Text file transfers will be available among Apple //, Apple ///, and the Lisa.

**What about security on AppleNet?**

Apple is investigating the implementation of secure communications and user authentication in AppleNet.

# **Apple / Ethernet Interface Questions and Answers**

## **Marketing Questions**

### **Who will market the Apple/Ethernet interface?**

The Ethernet interface will be marketed by Apple National Account Executives and qualified Apple Dealers.

### **Who will install the Ethernet interface?**

The Ethernet interface can be installed by the customer or Apple dealer. For larger installations RCA Service can be contracted to provide installation support.

### **When will the Ethernet interface be available?**

The Ethernet interface will be introduced (demonstrated) at NCC. The Ethernet interface will be available to end users in late 1983.

### **What Apple products will be supported by the Ethernet interface?**

Apple//, Apple///, and the Lisa. Support software will be available in the same phases as AppleNet, with the Lisa support available in late 1983 and Apple // and Apple /// support available several months later.

### **Will users be able to interface to Xerox File Servers, Print Servers, or Communication Servers through the Ethernet interface?**

No. Communication with these Xerox servers requires several higher-level interface protocols that Xerox has not yet released. When Xerox releases these protocols, Apple will consider providing the software to make these servers accessible through the Ethernet interface. Communications capabilities available at first release will be document transfer between the Lisas and XNS transport level development toolkits for the Apple //, second phase with text file transfer between all Apple products on the Ethernet.

### **Will a European version of the Ethernet interface be offered?**

A separate version of the Ethernet interface will be manufactured for European markets. The only difference will be the line voltage and frequency.

### **Why is Apple offering both AppleNet and an Ethernet interface?**

There are identified customers for Apple personal computer and personal office products who have an installed Ethernet and want Apple products to communicate on that existing network. There are also customers for Apple products who might desire network bandwidth or geographic scope beyond that of a single AppleNet. Apple wants to provide these customers with an alternative networking solution that is still an Apple product, the Ethernet interface.

## **Technical Questions**

### **Is Ethernet interface truly Ethernet compatible?**

The Ethernet interface conforms to the Ethernet Specification, Version 1.0, 30 September 1980, as published by DEC, Intel, and Xerox.

**What functions are performed by the Ethernet interface?**

The Ethernet interface implements Level 0 of the Xerox Network Systems protocols. This translates to Layer I and Layer 2 of the ISO Reference Model. These layers perform the following functions:

**ISO Layer I**

- Electrical isolation between coax and workstation
- Bit transmission and reception
- Carrier sensing
- Transmit collision detection
- Signal encoding and decoding
- Packet preamble generation and removal

**ISO Layer II**

- 32-bit CRC generation and checking
- Carrier deference
- Transmit collision enforcement
- Collision fragment filtering
- Bad packet filtering
- Address recognition

**What technology is the Ethernet interface based on?**

The design is based around a VLSI Ethernet Data Link Controller integrated circuit (EDLC) and 3COM transceiver.

**Is the Ethernet interface safety certified?**

The Ethernet interface will be UL certified under UL 114 (Office Machines) and UL 478 (Data Processing Equipment) for the U.S.

**Is the Ethernet interface electromagnetically compatible?**

The Ethernet interface will be certified as a Class A device under FCC Part 15, Subpart J, for radiated and conducted emissions.

**Does the Ethernet interface provide buffering?**

The Ethernet interface has three 2Kbyte buffers that are permanently assigned; two are assigned receive buffers and one a transmit buffer. The packet buffers are large enough for any legal size Ethernet packet.

# Service and Support Questions and Answers

**What warranties will come standard with the Lisa?**

## **Standard Hardware Warranty**

The Lisa will be covered by the standard 90-day parts and labor warranty. The terms of this warranty will require the customer to return defective equipment to an Apple Authorized Service outlet, unless the warranty was upgraded under the provisions of an on-site maintenance contract.

## **Standard Software Warranty**

The Lisa software will be covered by the standard 90-day defective media warranty.

**What other technical support and service is standard when you buy the Lisa?**

## **Telephone Support**

Each Lisa system will carry enough access time to Apple's Technical Support Organization (through an 800 number) to support the primary user through the 90-day warranty period. Technicians will provide immediate answers to basic questions on the operation of the Lisa applications and languages.

## **Software Updates**

The first update to the Lisa's applications software will be included in the price of the system.

## **How about system installation?**

Any Apple direct sale or National Account customers may elect the Lisa system installation at their site. Dealer direct sale customers may elect on-site installation, or if customers purchase an RCA on-site maintenance contract. Installation includes:

- Interconnection of system, peripherals, and power source
- Operating system configuration
- Software loading onto ProFile
- Verification of proper system operation
- Some operator training

**If I buy the Lisas directly from Apple, who will service my equipment?**

Apple direct sale customers will have three hardware support options:

**RCA On-Site Maintenance:** RCA is Apple's exclusive third-party, on-site maintenance vendor with 200 service offices located in the continental United States and Puerto Rico. For customers within 100 miles of an RCA service center, RCA guarantees 4-hour response between 8 A.M. and 5 P.M., Monday through Friday. Users with on-site service contracts can elect extended-hour service.

**Servicing Owner:** This program was developed for those customers geographically remote from Apple POSDs or running critical applications which cannot afford the downtime associated with other repair programs. Servicing owners are treated very much like Level I dealers. They receive identical training and may purchase spares direct from Apple.

**Authorized Dealer Service Program:** All direct sale customers have the option of purchasing service through the Apple POSD network. These programs include Dealer On-site Service, AppleCare Carry-In Service, or time and materials carry-in repair.

**What hardware service alternatives will be available from the Personal Office Systems Dealers?**

Although the range of service and support programs differ from dealership to dealership, typical programs include:

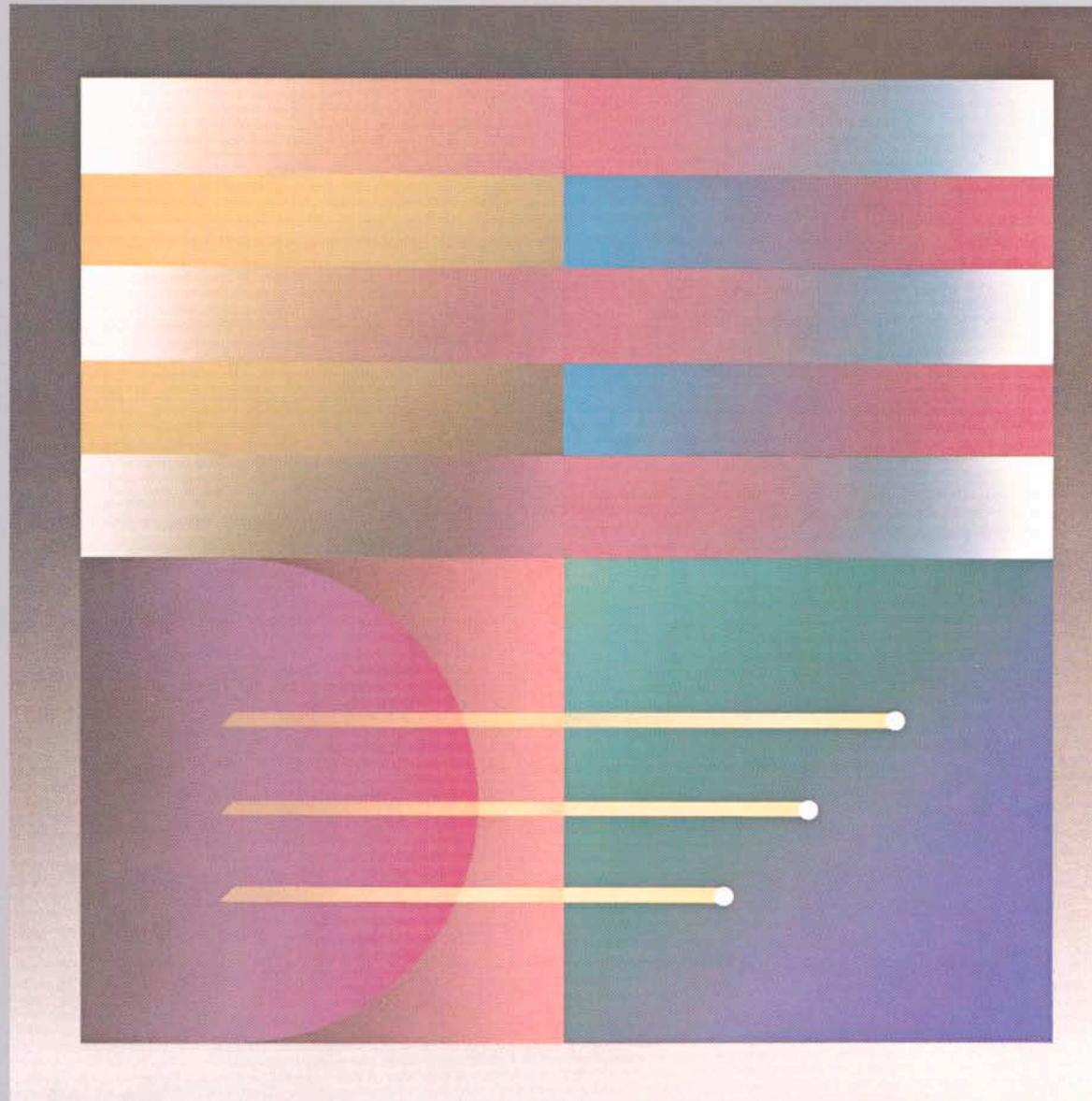
**On-Site Maintenance:** POSDs who offer on-site service design their own service contracts to meet the needs of the mix of customers they support.

**AppleCare Carry-In Service:** Through the POSD network, Apple will offer customers a fixed price, one-year, system maintenance contract. Customers can purchase an AppleCare Carry-In contract at any authorized Apple Personal Office Systems Dealer and may bring defective equipment into any Authorized POSD for repair. The goal is while-you-wait service.

**Authorized Personal Office Systems Service:** Every dealer who sells the Lisa can provide carry-in service on the unit.

**How can I be sure that I have the latest software revision?** A mailing list will be compiled from the returned software license agreements. When updates become available, customers will be notified and offered the opportunity to purchase the update for a small administrative fee.





Lisa's BASIC-Plus is a flexible programming language that enables you to create new applications for your specific needs. Expanding the BASIC-Plus language used by DEC, BASIC-Plus has a rich set of statements and commands that makes it one of the most versatile BASIC Interpreters available for micro-computers.

A superset of Dartmouth BASIC, BASIC-Plus is simple enough for beginners and powerful enough for developing sophisticated business and scientific applications. And applications written in most other micro-computer BASICs can be easily modified to run on Lisa.™

BASIC-Plus gives programmers one of the largest BASIC programming workspaces available on any personal computer. The IEEE Standard floating-point system provides accuracy that is unsurpassed in other personal or minicomputer BASICs. And as an interpreter, BASIC-Plus is excellent for fast program development and debugging.

**Lisa's BASIC-Plus combines the power, precision, and versatility of sophisticated minicomputer BASICs, with the simplicity and ease of use that makes BASIC the preferred language for many business and scientific programming applications.**

**Uncomplicated programming with fast results.**

- Straightforward BASIC language is easy to learn and use.
- Programs can be executed immediately after being entered or changed—no compiling or linking steps are needed.
- Immediate execution mode provides fast results to statements entered.

**Compatibility with other BASICs.**

- BASIC-Plus is fully compatible with DEC's BASIC-Plus (except for some system-dependent parts).
- Programs written in most microcomputer BASICs can easily be converted to run on Lisa.

## Product Highlights

**A Powerful, Personal Computer BASIC with Large-System Capabilities**

- BASIC-Plus allows all available memory to be used, thus supporting the development of large programs. For easier and more reliable programming, variable names may contain up to 30 significant characters. The IEEE floating point arithmetic provides unsurpassed accuracy in double-precision calculations, and the string arithmetic offers accuracy to 56 digits.

**Immediate Response for Fast Results**

- For one-time calculations, BASIC-Plus users may enter instructions directly and observe the results as operations are executed. Thus, users can choose to run entire programs or enter statements one at a time, and immediately see the results.

**Advanced Features**

- BASIC-Plus offers a number of advanced features that enable users to create powerful BASIC programs in an efficient, structured manner. The common IF...THEN statement has been extended with an ELSE clause to simplify conditional IF...THEN...ELSE constructs. And statement modifiers provide an efficient means of writing one-line looping and conditional statements. BASIC-Plus's user-defined functions are extended with multiple lines and parameters to allow far more powerful functions than most BASICs.

**Powerful File Handling**

- BASIC-Plus supports a variety of file-handling options. Sequential files may be used for reading or writing records in sequential order. Blocks of data may be read or written in any order with the random file I/O. And virtual arrays allow large amounts of data to be stored on disk, while being accessed like ordinary arrays.

**Flexible Print Formatting**

- For business reporting or file output, the PRINT USING statement provides the most commonly used formatting capabilities, such as control of field length, format of numerical output, leading asterisks, trailing minus signs, floating dollar signs, and punctuation.

**Easy Debugging**

- Since BASIC-Plus is interpretive, it is easy to debug programs. STOP statements may be inserted into a program at any point; you can then examine and modify the variable values. When you're finished, you can continue program execution from the point it left off. And there is no need to recompile or relink; simply enter the RUN command to start execution.

**Workshop Manager**

- BASIC-Plus runs in the Workshop, which is a complete development and execution environment with facilities similar to the Apple II and Apple III Pascal environments.

### Powerful support for commercial applications.

- PRINT USING option allows flexible report formatting with numbers, character strings, or dollar amounts.
- Double-precision floating point provides accuracy to 15 decimal digits.

### Unparalleled support for engineering applications.

- IEEE Standard numerics provide unsurpassed double-precision floating point accuracy.
- String arithmetic offers accuracy to 56 digits.
- Multivariable and multiline functions, recursive functions, virtual arrays, matrix operations, and versatile statements support complex applications.

### Efficient development of complex BASIC applications.

- Varied branching and looping statements, statement modifiers, and sequential and random file I/O provide powerful programming facilities.
- Immediate execution mode allows fast and thorough debugging.

## Specifications

### Operation

The flexible program structure of BASIC-Plus allows both multiple statements per line and multiple lines per statement.

BASIC-Plus also enables users to create and run programs or to enter statements for immediate execution and response (calculator mode):

<i>Program</i>	<i>Immediate Execution</i>
10 A = 3	A = 3
20 PRINT A*A	Ready
30 END	Print A*A
RUN	9
9	Ready

### Variables

BASIC-Plus offers three types of variables:

- integers (5, 279).
- floating point/scientific notation (.817E55).
- character string ('TO BE OR NOT TO BE').

In addition, one- or two-dimensional arrays may be integer, floating point, or character string. Addition, subtraction, and multiplication may be performed on entire matrices.

### Branching and Looping

BASIC-Plus has a powerful set of branching and looping statements:

- GOTO
- IF... THEN... ELSE
- IF... GOTO
- FOR... NEXT
- WHILE... NEXT
- UNTIL... NEXT
- ON... GOTO (computed branch)
- ON... GOSUB (computed subroutine call)
- ON ERROR (branch to error handler)

For example:

- 100 IF BALANCE < 1000 THEN STATUS\$ = 'FINE'  
ELSE IF CREDITS = 'OK' THEN STATUS\$ = 'FINE'  
ELSE STATUS\$ = 'HOLD'

In addition, BASIC-Plus has statement modifiers for single statement loops and conditional execution:

- IF
- UNLESS
- FOR
- WHILE
- UNTIL

Statements may have single modifiers:

- 100 READ A(I) FOR I = 1 TO 10

Or multiple modifiers:

- 100 READ A(I,J) FOR I = 1 TO 10 IF J < 10

### Subroutines

With the GOSUB statement, BASIC-Plus allows sections of code to be executed from various points within a program. Different subroutines may be called from a given point within a program with the ON GOSUB statement. For example:

- 100 ON I GOSUB 1000, 1100, 1200

The subroutine at line 1000, 1100, or 1200 is executed, depending on whether I = 1, 2, or 3, respectively.

### Functions

BASIC-Plus has a comprehensive set of built-in functions for mathematical and string operations. Functions may also be used recursively.

Mathematical functions include:

- Transcendental—sine, cosine, tangent, arc tangent.
- Logarithms and exponents—natural log (base e), common log (base 10), exponent (e<sup>x</sup>).
- String arithmetic—add, subtract, multiply, and divide strings of numeric characters (accuracy to 56 places).
- Matrices—transpose, inverse, and determinant.

String functions include:

- Conversions—a full set of conversions between strings and integer, floating point, and ASCII values.
- Position—substrings consisting of the left, right, or middle portion of a string.
- Search—looks for a substring within a string.
- Other—length, translation, and spaces.

For repetitive operations, users may define their own functions, including functions with multiple parameters and more than one line. For example, the following function will find the average of three numbers:

```
10 DEF FNA (A,B,C)
20 SUM = A+B+C
30 FNA = SUM/3
40 FNEND
50 AVERAGE = FNA (2,4,6)
60 PRINT AVERAGE
70 END
RUN
4
Ready
```

### I/O

BASIC-Plus offers a comprehensive set of I/O options:

- Console: INPUT statements read from the keyboard; PRINT statements write to the screen.
- Sequential files: enable users to read and write records in sequential order.
- Random (block) files: enable users to read and write files one block at a time in any order.
- Formatted print: PRINT USING statement prints string and numeric values with decimal placement, exponents, leading asterisks, trailing minus signs, floating dollar signs, and commas.
- Arrays: virtual arrays allow users to store arrays on disk rather than in memory, yet be accessed like memory-resident arrays. MAT PRINT prints arrays in a formatted fashion.
- Data lists: READ and DATA statements read data from input data lists and assign the values to specified variables.

### Execution Environment

Workshop Manager: a complete development and execution environment for independently developed applications. The workshop facilities are similar to the Apple II and Apple III Pascal environments.

### System Requirements

BASIC-Plus runs on any Lisa.

- BASIC-Plus includes:
  - Interpreter.
  - User's Guide.
  - Editor.

# BASIC-Plus



#### **Apple/U.S.**

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

#### **Apple/U.K.**

Apple Computer (U.K.) Ltd.  
Eastman Way  
Hemel Hempstead  
Herts HP2 7HQ  
England  
011-44-442-60244  
TLX 851-825834

#### **Apple/Europe**

Apple Computer International  
5/7 rue de Chartres  
92200 Neuilly-sur-Seine  
France  
011-33-1-624-21-13  
TLX 842-630296

#### **Apple/Canada**

Apple Canada  
875 Don Mills Road  
Don Mills  
Ontario, Canada M3C 1V9  
(416) 444-2531  
800-268-7637  
TLX 06-986561

©Apple and the Apple logo  
are registered trademarks of  
Apple Computer, Inc.

™ Lisa is a trademark of  
Apple Computer, Inc.

Product specifications may  
change without notice.



### Run programs with mainframe sophistication.

- Full implementation of high-level COBOL.
- Multi-key ISAM facility, based on an efficient B-tree structure.
- SORT/MERGE capability for faster program development.

### Access the largest base of existing applications in the world.

- COBOL is the most commonly used commercial programming language.

- COBOL meets and exceeds the specifications for ANSI Standard X3.23 and GSA High Level.
- COBOL contains several of the most commonly used IBM COBOL extensions.

### Extensions allow efficient programming of powerful applications.

- Extended versions of ACCEPT and DISPLAY commands allow

input and display positioning at specified points on the Lisa screen.

- Line sequential file handling (text-editor style).
- Run-time specification of external file and program names.

### The Editor offers the standard Lisa-style user interface for fast editing and program modification.

- The Editor's Lisa-style user-interface enables you to use the

mouse, menus, and other Lisa features, including having more than one file on the screen at once.

- Text may be moved from one file to another simply by copying or cutting and pasting.
- Standard editing functions, such as FIND, REPLACE, INSERT, and UNDO are also available.

## Product Highlights

1. Because COBOL is a full implementation of ANSI '74 High Level COBOL, it can be used for a variety of purposes, such as:

- developing new programs for execution on Lisa (or on any other computer with an ANSI '74 COBOL compiler);
- converting existing COBOL programs to run on Lisa;
- debugging or enhancing existing COBOL programs that have been temporarily downloaded to Lisa.

2. COBOL lets you load and run an integrated hierarchy of programs under the control of a single, resident COBOL program. Subprograms are loaded dynamically from disk by the CALL statement. The memory occupied by a subprogram can subsequently be freed by means of a CANCEL statement.

This combination of CALL and CANCEL means that, aside from the availability of space on the disk, there is effectively no limit to the size of applications that can be run.

3. The ANSI-defined communications module provides you with a standard mechanism for passing messages from one program to another.

4. Sophisticated file-handling facilities include multikey ISAM, SORT, and MERGE.

5. COBOL is a complete development environment that includes the COBOL compiler and run-time system, the Editor, and development utilities.

6. COBOL and applications written with COBOL run in the Workshop, which is a complete development and execution environment with facilities similar to the Apple II and Apple /// Pascal environment.

## Specifications

### Basic capabilities:

- COBOL meets and exceeds:
  - ANSI X3.23 1974 COBOL standard.
  - High Level as specified by the GSA (General Services Administration).

### Execution environment:

- Workshop Manager: a complete development and execution environment for independently developed applications. The Workshop facilities are similar to the Apple II and Apple /// Pascal environments.

### ANSI language features:

- Implemented at Level 2 (highest level):
  - nucleus.
  - table handling.
  - sequential I/O.
  - relative I/O.
  - indexed I/O.
  - interprogram communication.
  - segmentation.
  - library.
  - debug.
  - sort/merge.

### ACCEPT and DISPLAY commands:

- Extended to allow specification of where on the screen to display:
  - user input as entered.
  - output data as generated.

### Compiling:

- COBOL programs are compiled to compact intermediate form which is then interpreted by the run-time system.

### Editing:

- COBOL programs are created using the Editor.

### System requirements:

- COBOL will run on any Lisa.
- COBOL includes:
  - Compiler.
  - Run-time system.
  - Editor.
  - Utilities.
  - Reference Manual.
  - User's Manual.
  - Workshop Manager Manual.

#### Apple/U.S.

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

#### Apple/U.K.

Apple Computer (U.K.) Ltd.  
Eastman Way  
Hemel Hempstead  
Herts HP2 7HQ  
England  
011-44-442-60244  
TLX 851-825834

#### Apple/Europe

Apple Computer International  
5/7 rue de Chartres  
92200 Neuilly-sur-Seine  
France  
011-33-1-624-21-13  
TLX 842-630296

#### Apple/Canada

Apple Canada  
875 Don Mills Road  
Don Mills  
Ontario, Canada M3C 1V9  
(416) 444-2531  
800-268-7637  
TLX 06-986561

Lisa

## The Apple Daisy Wheel Printer



The Apple Daisy Wheel Printer adds professional letter-quality printing capability to Lisa™. Reports, letters, charts, diagrams — any text or graphics you create with your Lisa can be printed with the Apple Daisy Wheel Printer. And what you see on the screen is exactly what you get on the printed page.

Apple's exclusive print wheels offer unique printing capabilities. The versatility they provide means changing print wheels less frequently to get the professional-quality documents you need.

**The Apple Daisy Wheel Printer's unique print wheels let you print both text and graphics with any print wheel. With them you can produce professional-quality printouts of any text or graphics created with Lisa.**

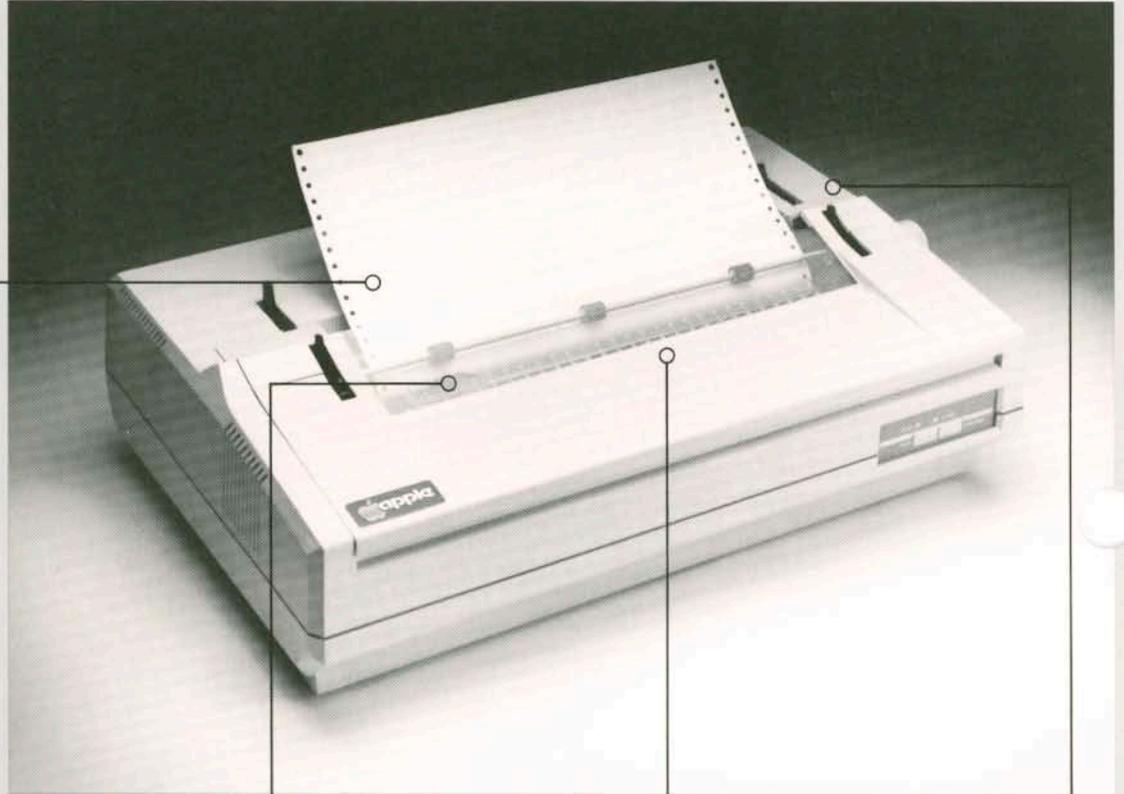
**Professional-quality text and graphics.**

- High-resolution printing creates type sizes up to 1/32 inch high—as well as pictures, charts, and other graphics.
- Many type sizes are available, from "fine print" to "headline" sizes.
- Each typestyle can be printed in bold and underlined.

**What you see on the screen is what you get on the page.**

- One printout is all you'll need because you'll know beforehand how the finished product will look.
- All print options, such as margins, pagination, and line spacing, are displayed on the screen.
- The printer accepts both fan-fold and single-sheet paper. Single sheets can be inserted vertically or horizontally and

**Text and graphics** produced by the Apple Daisy Wheel Printer give a professional polish to your reports and other documents. Designed for maximum versatility and ease of use, the Daisy Wheel Printer reaches its full potential when it's used with Lisa.



**Platen** The printer will accommodate paper up to 14 inches wide—perfect for documents that require a horizontal format. Both fan-fold and single-sheet paper are accepted.

**Ribbon** No-mess cartridge ribbons drop in easily. Choose both long-life cloth ribbons and multistrike carbon ribbons.

**Daisy Wheel** Apple's exclusive 130-spoke daisy wheels mean less print wheel changing, more convenience. Lisa's custom print wheels give you even more versatility. And all print wheels can be used to create graphics as well as text.

**Cable** The printer just plugs into a convenient jack at the back of Lisa. No interface card is required.

paper up to 14 inches wide can be used.

### Increased printing performance and versatility.

"Background" printing allows you to use Lisa for other tasks while your document is being printed.

- The printing format you define for each document is stored with it, for fast, accurate reprinting at a later time.

- Printer setup is controlled with the mouse—just select options from the checklist.

### Innovations in daisy wheel technology save time and work.

- All print wheels contain 130 spokes and create graphics as well as text.
- Apple's multipitch print wheel allows you to produce 10 pitch,

12 pitch, and proportionally spaced type without changing wheels.

- The Modern PS print wheel with italics gives you normal and italic typefaces on the same wheel and both can be printed in bold and underlined.
- The Modern 10/12 print wheel with additional characters enables you to print any of Lisa's

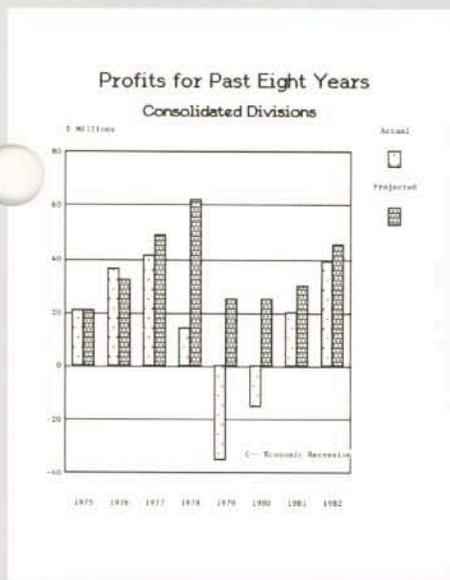
168 characters with the same print wheel.

### From carton to printout in ten minutes.

- The Apple Daisy Wheel Printer plugs directly into the back of Lisa.
- Printer options are selected from a Lisa checklist—there are no switches to set on the printer.



*Printer set-up options—such as paper size and type, and print wheels—are all controlled from within Lisa applications. Simply point with the mouse to select each option.*



*Mix text and graphics as needed. The Apple Daisy Wheel Printer can produce both—without a change of print wheels.*

### Lisa + Apple Daisy Wheel Printer = Efficiency

- The format you define for each document is stored with it, so future copies can be prepared rapidly. Of course, the format can be changed at any time.
- Lisa's "background" printing feature allows you to work on other documents—or even another Lisa application—while your text is being printed.
- It's easy to print multiple copies of a document, or to print selected pages.
- Apple's specially designed daisy wheels reduce your need to change wheels to get special characters. And with Apple's multipitch and italic wheels, you do not even have to change print wheels to use a variety of typestyles and sizes.
- Apple's Modern 10/12 print wheel allows you to print any of Lisa's characters without changing wheels.



*Besides the standard office typestyles, each print wheel can print "headline" size type as well as bold and underline. Also available are print wheels that offer italics and additional characters.*

### Professional Quality Printouts—With No Surprises

- What you see on Lisa's screen is exactly what you get on paper. Margins, page breaks, and line spacing will be just as you have chosen.
- Text and graphics can be combined within a document without changing print wheels.
- A multitude of typestyles are available, in sizes from "fine print" to "headline."
- All typestyles can be printed in bold and underlined.

### Getting Started Is Easy

- The Apple Daisy Wheel Printer plugs into a convenient connector on the back of the computer. No interface card is required.
- There's no need to set any switches on the printer. All set-up options are presented in an easy-to-use checklist and are automatically stored for future use.
- The Apple Daisy Wheel Printer accepts either fan-fold or single-sheet (letterhead) paper. Changing from tractor-feed to friction-feed paper takes seconds.
- Paper as wide as 14 inches may be used, so you can easily print spreadsheets, charts, and other wide documents.
- Two types of ribbons—long-life cloth ribbons and multistrike carbon ribbons—are available in drop-in cartridges.

# The Apple Daisy Wheel Printer

# Specifications

**Printing method:**

- Custom Apple 130-spoke plastic wheels.

**Print speed:**

- 40 characters per second (average for text).

**Print wheels available:**

- Special function print wheels:
  - Apple Modern 10/12/PS.
  - Apple Modern PS with italics.
  - Apple Modern 10/12 with additional characters.
- Standard print wheels for office use (including Courier 10 pitch, Prestige Elite 12 pitch, Gothic 15 pitch, and Executive proportional-space).

**Paper accommodated:**

- Fan-fold (tractor- or friction-feed), cut sheet, or forms up to 14 inches wide.

**Ribbons:**

- Plastic cartridge. Choice of multistrike carbon ribbon, or "endless" fabric ribbon. Ribbon is fed proportionally to character width, for maximum ribbon life.

**Format:**

- Horizontal Characters:
  - 132 columns at 10 pitch.
  - 158 columns at 12 pitch.
  - 198 columns at 15 pitch.
- Vertical Characters:
  - 6 or 8 lines per inch (line feed).
  - Manual positioning.

**Graphics/Custom Software:**

- Maximum 120 horizontal positions per inch.
- Maximum 48 vertical positions per inch.

**Weight and dimensions:**

- Weight: 37 lbs. (16.8 kg).
- Height: 6.87 in. (17.5 cm).
- Width: 23.22 in. (59.0 cm).
- Depth: 14.84 in. (37.7 cm).

**Power requirements:**

- 90–132 V AC (at 60 Hz) or 190–264 V AC (at 49–64 Hz).

**Power consumption:**

- 80 W during operation.

**Environmental requirements:**

- Operating:
  - Ambient temperature: 50°–104° F (10°–40° C).
  - Relative humidity: 10–90%, noncondensing.
- Storage:
  - Ambient temperature: –104°–+140° F (–40°–+60° C).
  - Relative humidity: 10–95%, noncondensing.

**Apple/U.S.**

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

**Apple/U.K.**

Apple Computer (U.K.) Ltd.  
Eastman Way  
Hemel Hempstead  
Herts HP2 7HQ  
England  
011-44-442-60244  
TLX 851-825834

**Apple/Europe**

Apple Computer International  
5/7 rue de Chartres  
92200 Neuilly-sur-Seine  
France  
011-33-1-624-21-13  
TLX 842-630296

**Apple/Canada**

Apple Canada  
875 Don Mills Road  
Don Mills  
Ontario, Canada M3C 1V9  
(416) 444-2531  
800-268-7637  
TLX 06-986561

Lisa

# The Apple Dot Matrix Printer



The Apple Dot Matrix Printer gives you professional-quality printouts easily and efficiently. Its high-resolution dot matrix output is unmatched, making it the right printer for reproducing anything — graphics or text — created with Lisa.™

Like no other printer in its class, the Apple Dot Matrix Printer brings Lisa's revolutionary graphics technology to the printed page.

With the precision of printers costing much more, the Apple Dot Matrix Printer puts Lisa's revolutionary graphics mouse technology at your fingertips.

**Unparalleled, high-resolution print quality.**

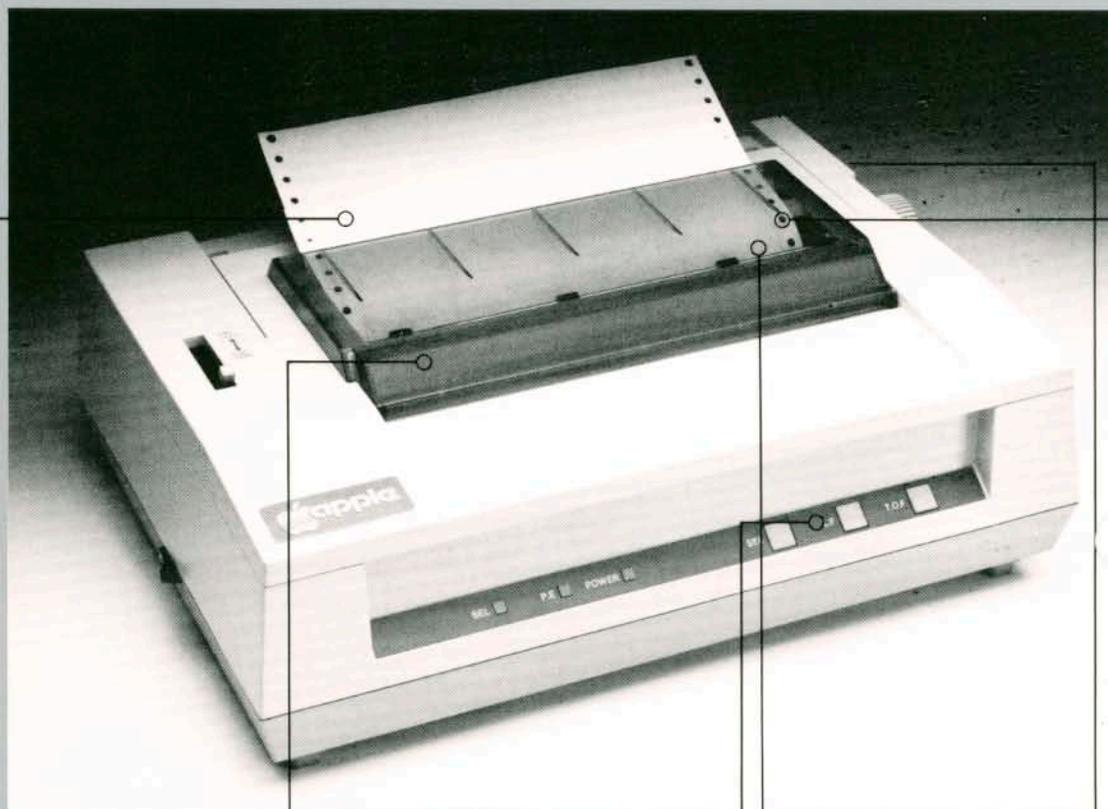
- The printer reproduces anything created on Lisa—high-resolution graphics and eleven different typestyles and sizes, including large presentation sizes.
- Each typestyle can be printed in regular, bold, italic, underlined, shadow, and hollow—in any combination.

- Printing can be done in either horizontal ("landscape") or vertical ("portrait") formats.

**Choose from high-resolution, normal, and high-speed draft printouts.**

- High resolution (160 x 144 dots per inch) provides fine detail for both graphics and text.
- Normal resolution (96 x 72 dots per inch) is ideal for memos, notes, and graphics.

Apple's high-resolution **Dot Matrix Printer** can reproduce Lisa's text and graphics with the precision of printers costing much more.



**Paper** The Dot Matrix Printer takes single-sheet and fan-fold paper.

**Ribbon** The drop-in cartridge makes changing ribbons neat and easy.

**Controls** All printer controls are on the front panel. The SEL control enables you to stop the printer from printing; use L.F. to advance one line, and T.O.F. to advance to the top of the page.

**Cable** To connect the printer, just plug one cable into the back of Lisa.

**Typestyles** The printer produces eleven different typestyles in any combination of typefaces.

**Speed** Printing is bidirectional, at the speed of up to 120 characters per second.

**Printouts** High-quality printouts reproduce any graphics and text created on Lisa.



- Draft printing gives you high-speed output for producing textual documents.

**What you see on the screen is exactly what you get on the printed page.**

- Lisa's unparalleled visual fidelity is brought to the page by the Dot Matrix Printer.
- The high-resolution mode gives you crisp, clear graphics and text.

- All formatting variables such as margins, pagination, and line spacing are stored with the document. This enables you to determine beforehand exactly how your document will look in print.

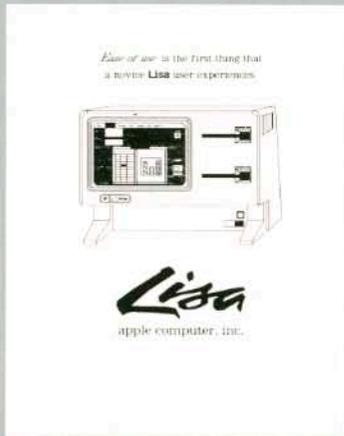
**Unsurpassed performance and versatility.**

- Printing options, such as portrait or landscape printing and single-sheet or continuous-form paper are selected from an easy-to-use checklist.

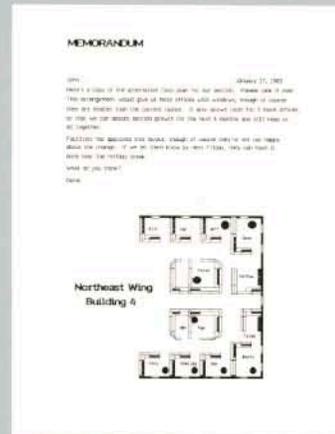
- Since the printer prints exactly what is on the Lisa screen, there's no need to set print parameters each time you need a printout.
- With Lisa's "background" printing feature, your Dot Matrix Printer can be printing one document while you're working on another.

**From carton to printout in 10 minutes.**

- Just take the printer out of the box, plug in the cable, and begin printing. There are no switches to set.
- To set up the printer, just select the printer options from Lisa's checklist.



*Lisa's graphics are most impressive when used with Apple's high-resolution Dot Matrix Printer.*



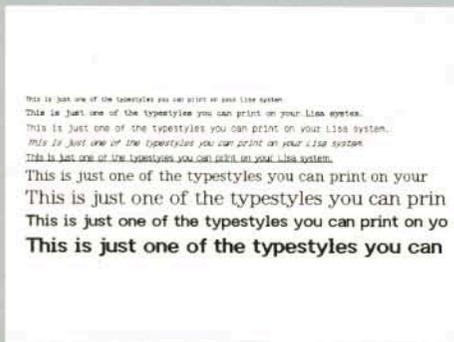
*High-resolution printout reproduces near letter quality documents.*

**Extraordinary Graphics**

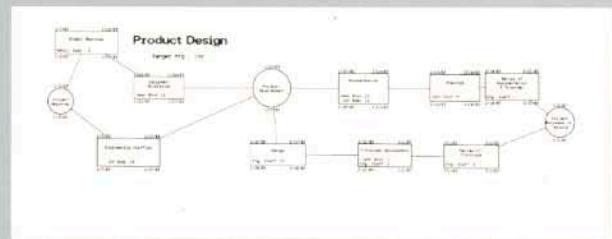
- Lisa's extraordinary graphics capability, combined with the Dot Matrix Printer's high-resolution, produces unparalleled graphics.
- In high-resolution mode (160 x 144 dots per inch), the Dot Matrix Printer produces precise graphics and near letter-quality text.
- Normal-resolution mode (96 x 72 dots per inch) is ideal for memos, notes, and some graphics applications.
- Draft mode helps you produce lists and rough drafts at 120 characters per second.

**Letter Quality Printouts for a Professional Look**

- The quality of business letters and memos produced by the Dot Matrix Printer rivals those produced by far more expensive printers.
- Margins, pagination, line spacing, and other formatting variables are displayed on the screen for easy editing and adjustment.
- The print format for each document is stored with it for quick printing of additional copies. The format can be changed at any time.
- Documents may be printed in vertical or horizontal formats.
- Printer configuration is easily selected from a Lisa checklist. This configuration remains with the document until you change it.



*This versatile printer can produce high-quality text in many different typesyles and sizes.*



*Without changing the paper in the printer, you can print any document created on Lisa in a horizontal format — ideal for spreadsheets and project scheduling.*

**A Wide Variety of Typesyles**

- Full raster printing offers you eleven different typesyles and sizes: Courier 10 pitch; Prestige Elite 12 pitch; Gothic 15 pitch; Executive proportional space; Modern 10 pitch, 12 pitch, proportional space, 1/4 inch, and 1/3 inch; and Classic 1/4 inch and 1/3 inch.
- Each of these typesyles can be printed in six different typefaces: regular, bold, italic, shadow, hollow, and underlined.
- Any typesyle (Courier 10 pitch, for example), can be combined with any typeface (such as bold). Thus you can create Courier 10 pitch bold and underlined, or bold and italics, or even Courier 10 pitch bold italic underlined.

**Convenience Features**

- Lisa's "background" printing feature lets you print one document while you're working on another document or application.
- Print multiple copies of the same document, or portions of a document, simply by choosing items from Lisa's printing checklist.
- Built-in tractor feed reduces wasted paper.
- Changing paper from single sheet to tractor feed is easy.
- Changing ribbons is clean and easy with drop-in cartridges.
- Installation takes less than 10 minutes. There are no switches to set and there is only one cable to plug in.

# The Apple Dot Matrix Printer

# Specifications

**Printing method:**

- 9-wire impact printhead (user-replaceable).
- Logic-seeking, bidirectional printing.

**Print speed:**

- In draft mode:
  - 120 characters per second.
  - 70 lines per minute.

**Print modes:**

- High Resolution
  - 160 × 144 dots per in. (6.2 × 5.6 dots per mm).
- Normal
  - 96 × 72 dots per in. (3.7 × 2.8 dots per mm).
- Draft

**Typestyles available:**

- Courier 10 pitch.
- Prestige Elite 12 pitch.
- Gothic 15 pitch.
- Executive proportional space.
- Modern proportional space.
- Modern 10 pitch.
- Modern 12 pitch.
- Modern ¼ in.
- Modern ⅓ in.
- Classic ¼ in.
- Classic ⅓ in.

**Typefaces available:**

- Regular.
- Bold.
- Italic.
- Shadow.
- Hollow.
- Underlined.

**Line spacing:**

- Minimum: 1/144 in.
- Maximum: 99/144 in.
- Any value in between, including:
  - 1/6 in. (24/144 in.).
  - 1/8 in. (18/144 in.).

**Controls:**

- Printer Select/Deselect.
- Top-of-form feed.
- "Paper out" indicator.

**Paper accommodated:**

- Single sheets, rolls, fan-fold, or forms.
- Up to 10 in. wide.
- Up to 1/16 in. thick.

**Number of copies:**

- Original plus three copies.

**Paper feed method:**

- Friction or sprocket/pin feed.
- Loaded from rear top.

**Ribbon:**

- Black fabric (inked).

**Driving method:**

- Stepper motor.

**Weight and dimensions:**

- Weight: 18.7 lb. (8.5 kg).
- Width: 15½ in. (39.8 cm).
- Depth: 11 in. (28.5 cm).
- Height: 4¾ in. (12.5 cm).

**Power requirements:**

- 115 V + 10% at 60 Hz.
- 100 V + 10% at 50/60 Hz.
- 220 V + 10% at 50 Hz.
- 240 V + 10% at 50 Hz.

**Power consumption:**

- Operating: 180 W maximum.
- Standby: 16 W.

**Environmental requirements:**

- Operating:
  - Ambient temperature: 41°–104°F (5°–40°C).
  - Relative humidity: 10–85%, noncondensing.
- Storage:
  - Ambient temperature: –77° to +140°F (–25° to +60° C).
  - Relative humidity: 0–90%, noncondensing.

**Apple/U.S.**  
Apple Computer, Inc.  
20525 Mariani Avenue  
Cupertino, California 95014  
(408) 996-1010  
TLX 171-576

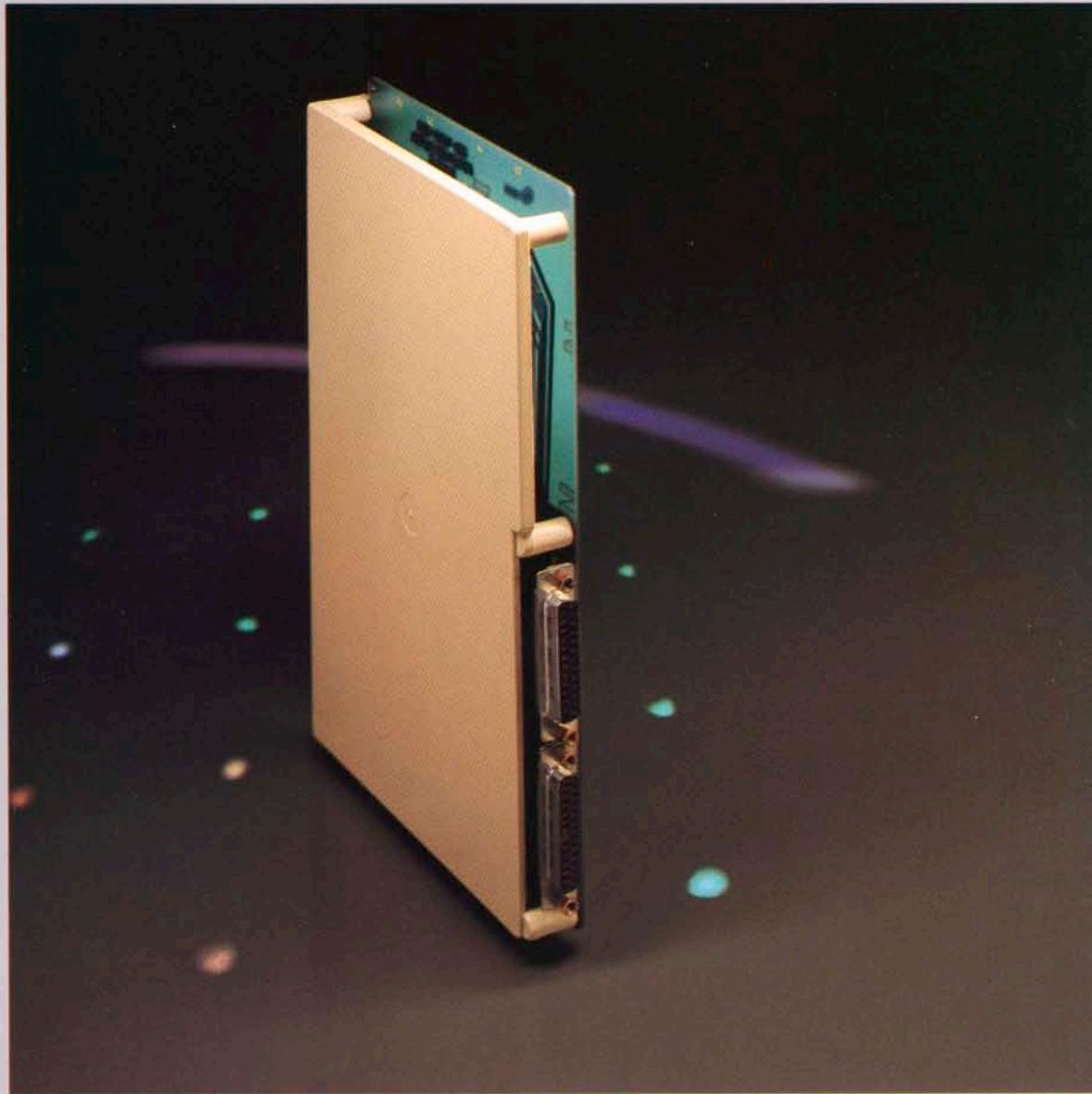
**Apple/U.K.**  
Apple Computer (U.K.) Ltd.  
Eastman Way  
Hemel Hempstead  
Herts HP2 7HQ  
England  
011-44-442-60244  
TLX 851-825834

**Apple/Europe**  
Apple Computer International  
5/7 rue de Chartres  
92200 Neuilly-sur-Seine  
France  
011-33-1-624-21-13  
TLX 842-630296

**Apple/Canada**  
Apple Canada  
875 Don Mills Road  
Don Mills  
Ontario, Canada M3C 1V9  
(416) 444-2531  
800-268-7637  
TLX 06-986561

Lisa

## Parallel Interface Board



The Parallel Interface Board enables your Lisa™ system to accommodate peripherals structured with a parallel interface, such as Apple's ProFile™ hard disk and the Apple Dot Matrix Printer.

Lisa already has one built-in parallel port, so a Parallel Interface Board is needed only for a system that will include more than one parallel peripheral device.

Each Parallel Interface Board has two ports, and as many as three Parallel Boards may be installed in Lisa's expansion slots. This means that Lisa can support a total of seven parallel peripherals at one time.

### All the parallel ports you'll need.

- Each Parallel Interface Board has two ports. When Parallel Interface Boards are in each of Lisa's three expansion slots, Lisa can support seven separate parallel devices.
- Any device that uses Apple's standard parallel interface can be connected to the Parallel Interface Board. This includes the ProFile hard disk and the Apple Dot Matrix Printer.

- Installation of a Parallel Interface Board is simple. Just plug it into any one of Lisa's three expansion slots.

### A high-performance, versatile interface.

- The Parallel Interface Board transmits data at the maximum rate of 625K bytes per second.

- Several different handshaking protocols are available.
- Four programmable timers are available for software.
- The Parallel Interface Board's ports use a software command format similar to that used in Lisa's built-in parallel interface.
- Standard port control is based on 6522A Versatile Interface Adapter circuits.

### Comforting reliability.

- Parity checking on data lines helps detect possible errors.
- Self-test diagnostics verify the Parallel Interface Board's correct operation.

## Specifications

### Basic functions:

- Contains two parallel interface ports.
- Supports standard Apple parallel interface protocol.
- 2K bytes ROM on board.
- Port control based on 6522A Versatile Interface Adapters.
- Four programmable timers.

### Ease of use:

- Easy installation by user.
- Plugs into any one of three expansion slots.
- Allows startup from either of two attached ProFiles™

### Data transfer:

- Maximum rate: 625K bytes per second.
- Interrupt capability.
- Supports several read/write handshake modes.

### Safety features:

- Self-test diagnostics.
- Parity check on data lines.

### Dimensions:

- Height: 9.3 inches (236 mm).
- Width: 5 inches (127 mm).
- Depth: 0.7 inch (18 mm).

### Power consumption

- 1 amp at 5 V Max.

This equipment complies with the requirements in Part 15 of FCC Rules for a Class A computing device. Operation of this equipment in a residential area may cause unacceptable interference to the radio and TV reception requiring the operator to take whatever steps are necessary to correct the interference.

#### Apple/U.S.

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

#### Apple/U.K.

Apple Computer (U.K.) Ltd.  
Eastman Way  
Hemel Hempstead  
Herts HP2 7HQ  
England  
011-44-442-60244  
TLX 851-825834

#### Apple/Europe

Apple Computer International  
5/7 rue de Chartres  
92200 Neuilly-sur-Seine  
France  
011-33-1-624-21-13  
TLX 842-630296

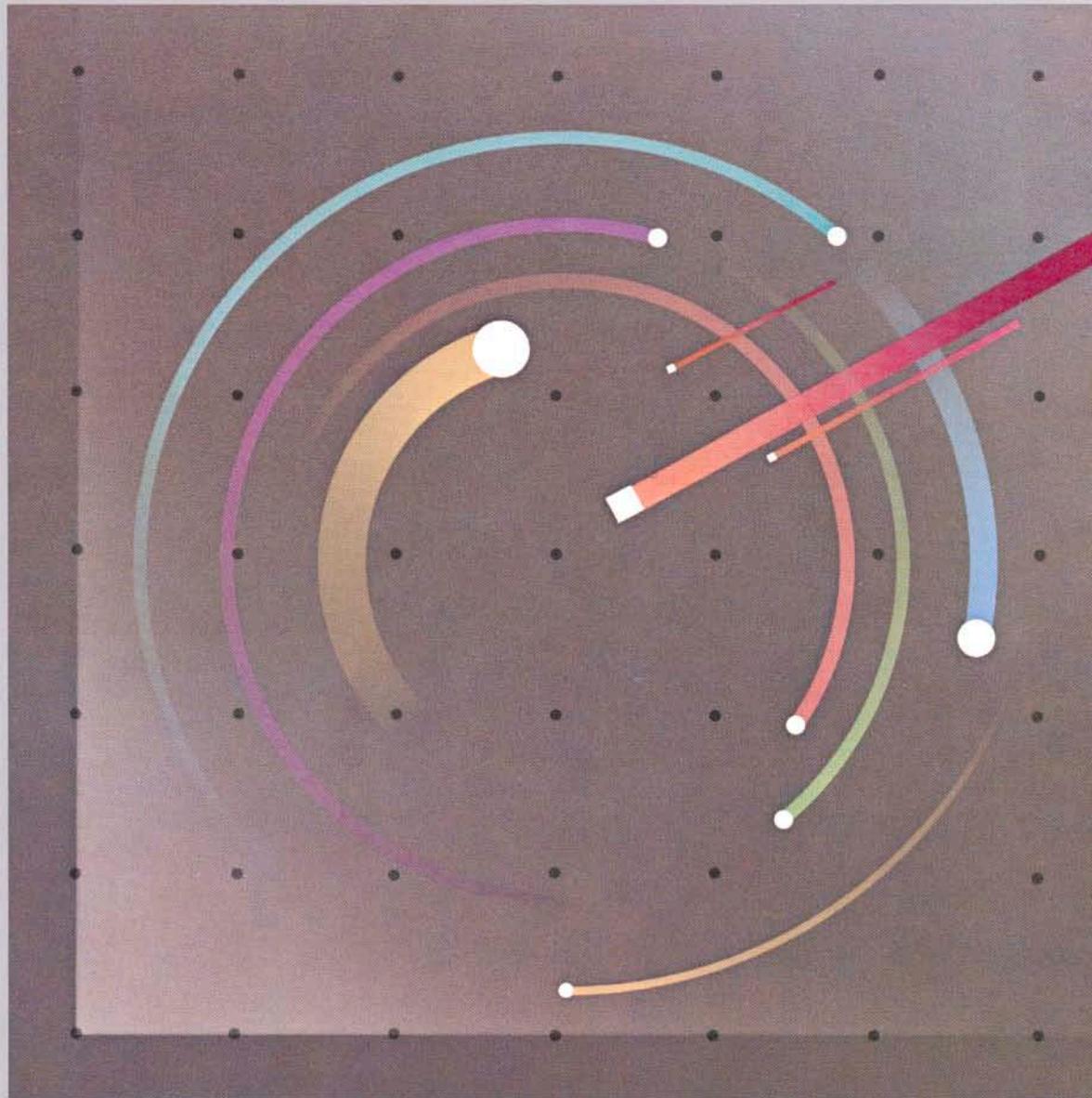
#### Apple/Canada

Apple Canada  
875 Don Mills Road  
Don Mills  
Ontario, Canada M3C 1V9  
(416) 444-2531  
800-268-7637  
TLX 06-986561

\*Apple and the Apple logo are registered trademarks of Apple Computer, Inc.

™Lisa is a trademark of Apple Computer, Inc.

Product specifications may change without notice.



Lisa's Pascal is a complete environment for developing Pascal programs. It includes a Pascal compiler, editor, linker, assembler, debugger, and a wide range of utilities.

A disciplined program structure, flexible data structures, and extensive data typing make Pascal an excellent vehicle for easily developing and maintaining Lisa™ applications and systems.

## **Pascal is a fast, effective way to develop applications for the Lisa system.**

### **A powerful development language at your fingertips.**

- Support for top-down, well-structured programs encourages programming that's reliable and easy to maintain.
- An assortment of variable types and structures are also available, including those defined by the user.

### **Pascal supports large program development.**

- Units allow parts of a program

to be compiled separately and linked to the main program later.

- Libraries provide access to collections of commonly used procedures and subroutines.
- Include files allow separately stored sections of source code to be included in a compilation.

### **Extensions aid application and systems development.**

- Additions (such as procedure parameters, a "location of" operator, and the ability to link with assembly language) extend Pascal for use as a system programming language.
- IEEE Standard floating point computations provide unsurpassed accuracy for floating point calculations.
- Powerful compiler options include conditional compilation, compile-time variable declaration and assignment, include files, and control of range checking, listings, segmentation, and debugging information.

## Product Highlights

### **A Complete, Powerful Development System**

- Pascal contains all the development tools needed to create applications running in the workshop environment. This includes the Pascal compiler, linker, editor, assembler, debugger, and utilities. These same tools were used by Apple to develop application software for Lisa.

### **Workshop Manager**

- Pascal and applications written with Pascal run in the Workshop, which is a complete development and execution environment similar to the Apple II and Apple III Pascal environments.

### **Fast Development of Sophisticated Applications**

- Pascal contains a host of features for efficient development of new applications programs. These features include a number of extensions to the ISO standard Pascal.
- Programs can be divided into units and segments, with separate compilations. This allows controlled development of different program sections and sharing of common libraries.
- Pascal includes a wide range of control structures, with varied conditional clauses. Pascal supports built-in memory management routines and a variety of built-in I/O capabilities.

### **Create Reliable, Easily Maintained Software**

- Pascal has a number of features that encourage good programming practices. For example, data typing is strongly enforced. This insures that calls to procedures and functions contain the correct type and number of parameters, thus removing one of the major sources of errors in Pascal programs (particularly when routines are shared between programs).
- Nested procedure and function calls, disciplined program structure, and support for modular program development all contribute to software that is designed in a top-down, structured manner, which in turn, is reliable and easy to maintain.
- User-defined data types make it possible to specify English-like values; this helps make programs clearer. With subrange types, assignable values can be limited to just those that are specified by the programmer. This feature also helps make programs more dependable.

### **Extensions for Versatile Systems Development**

- Pascal offers a number of enhancements for systems development. These include assembly language linkage, built-in functions for access to untyped memory locations, and procedure parameters.
- Pascal programs can access portions of the hardware interface in order to investigate mouse movement and keyboard events for stand-alone applications.
- Stand-alone Pascal applications can utilize the Lisa Quickdraw graphics routines. These routines control Lisa's elegant bit-mapped display images.

### The assembler helps with speed-critical code and hardware interfacing.

- Since routines written in Lisa assembly language can be mixed with Pascal programs, the main program can be written in Pascal and call assembly language routines for time-critical sections or for access to machine-dependent hardware features.
- Macros and conditional assembly are also provided.

### Lisa's editor offers the standard Lisa user interface for fast editing and development.

- The editor uses the mouse, menus, and other Lisa elements to let you edit Pascal programs efficiently and easily.
- You can have multiple files—each in a separate folder—on the screen at one time. You can move between folders simply by selecting with the mouse.

- Source code can be transferred from one program to another, using the CUT & PASTE operation. Standard editing operations—such as FIND, REPLACE, INSERT, and UNDO—are also available.

### A full set of utilities aid development.

- Among the utilities available are: performance analysis tools, segmentation management, system configuration, object file

inspection and manipulation, and file transfer, compare, and search.

### It's easy to transfer existing Pascal applications to Lisa.

- Pascal is based on ISO Pascal standard.
- It is very similar to Apple II and Apple III Pascal—differences are well documented.
- Pascal will be compatible with future tools that will be made available for creating Lisa-style applications.

## Specifications

### I. Language Description

#### A. Program structure

Pascal programs have a strict structure for reliability and easy maintenance:

- Program heading.
- Label declaration.
- Constant definition.
- Type definition.
- Variable declaration.
- Procedure and function declaration.
- Executable statements.

#### B. Units

- Separately compiled object files, called units, may be created.
- They can then be linked with other units, or with the main program.
- Units may be nested.

#### C. Variable types

The following are supported:

- Integer.
- Long integer.
- Real (IEEE standard floating point).
- Boolean.
- Character.
- String.
- Enumerated.
- Subrange.
- Pointer.

Arrays, records, sets, and files containing the above types are also supported.

#### D. User-defined types

- Program test:

```
TYPE day = (Sun, Mon, Tues, Wed, Thurs, Fri, Sat);
VAR Deadline : Day;
    .
    .
IF Deadline = Fri then Panic;
```

#### E. Procedures and functions

- User-defined procedures and functions may be nested within both the main program and other procedures and functions.

#### F. Control structures

- Repetitive statements:

```
WHILE...DO.
REPEAT...UNTIL.
FOR...DO.
```
- Conditional statements:

```
IF...THEN...ELSE.
CASE...OF...OTHERWISE.
```
- GOTO statement:

```
GOTO label.
```

- This rich set of conditional and looping statements makes possible routines such as the following:

```
IF Day in [Wed..Sun],
THEN case Day of
    Wed:   writeln('Plenty of time!');
    Thurs: writeln('One day left!');
    Fri:   writeln('Where is it?');
    otherwise writeln('Too late!')
END.
```

#### G. Input/Output

- I/O to block-structured, record-structured, and character-oriented devices is supported.
- Character-oriented I/O to text files and external devices:
  - READ (reads a series of values into a list of variables).
  - WRITE (writes out a series of values from a list of variables).
  - READLN (reads until the end of the line).
  - WRITELN (writes out an end-of-line when done).
  - EOLN (indicates whether an end-of-line has been reached).
- Block I/O: For fast bulk I/O, BLOCKREAD and BLOCKWRITE transfer single or multiple blocks at a time to and from disk files and external devices.
- General I/O: A number of functions are available for greater control over I/O:
  - RESET (OPENS existing file).
  - REWRITE (OPENS new file).
  - CLOSE.
  - EOF.
  - EOLN.
  - SEEK.
  - GET.
  - PUT.

#### H. Memory management

Commands available include:

- NEW (allocates memory used for dynamically allocated variables).
- MARK and RELEASE (reclaims memory used in the Pascal heap).
- MEMAVAIL (indicates the amount of memory available).

#### I. Mathematical functions

The following are available:

- Absolute value.
- Square.
- Square root.
- Sine.
- Cosine.
- Arctangent.
- Exponent (base  $e$ ).
- Natural logarithm.

#### J. String Functions

The following are available:

- Length.
- Index.
- Concatenation.
- Substring.
- Delete substring.
- Insert substring.



## II. Execution Environment

Workshop Manager: a complete development and execution environment for independently developed applications. The workshop facilities are similar to the Apple II and Apple III Pascal environments.

## III. Compiler

- Code generation on/off.
- Debugging information.
- Conditional compilations.
- Compile time variable declaration, and assignment for conditional compilation control.
- Include files.
- Compile listings.
- Range checking on/off.
- Segmentation control.
- Stack expansion control.

## IV. Assembler

- Macros.
- Conditional assembly.
- Linkage to Pascal programs.
- Full set of arithmetic operators.
- Listing controls.

Programs written in Pascal may call procedures and functions written in assembly language for speed-critical and highly machine-dependent activities.

## V. Editor

The editor has the Lisa-style user interface. Its features include:

- Text files presented in folders on the screen.
- Operations selected from menus using the mouse.
- Multiple files displayed at once, each in its own folder.
- Text moved from one file to another simply by copying, or cutting and pasting.
- The mouse can also be used to:
  - open a folder.
  - start editing in any folder.
  - move a folder around the screen.
  - scroll up and down in a folder.
  - adjust selected text right or left.
  - select the display font.
  - set tab stops.
  - search for a string.
  - replace a string.
- Includes standard editing functions such as FIND, REPLACE, INSERT, and UNDO.

## VI. Debugger

The Lisa debugger is a powerful low-level debugger offering these facilities:

- Display and set memory locations.
- Set and display register.
- Assemble and disassemble instructions.
- Set breakpoints, patchpoints, and traces at the machine level.
- Set up timing buckets for timing execution.
- Utility functions:
  - symbol and base conversion.
  - manipulating the hardware.

## VII. Utility programs

- Debugging:
  - Pascal cross reference.
  - PATCH and DUMPHEX allow examination and modification of files using either ASCII or hexadecimal representation.
- File handling:
  - file comparison for both object and text files.
  - text search across multiple files.
  - scan multiple files by displaying them in quick succession.
  - file split and join.

## VIII. System Configuration

- Pascal runs on any Lisa.
- Pascal Software
  - Compiler
  - Assembler
  - Linker
  - Editor
  - Debugger
  - Utilities
  - Workshop Manager
- Pascal Manuals
  - Reference Manual
  - MC68000 User's Manual
  - Workshop Manager Manual
  - System Software Manuals

### Apple/U.S.

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

### Apple/U.K.

Apple Computer (U.K.) Ltd.  
Eastman Way  
Hemel Hempstead  
Herts HP2 7HQ  
England  
011-44-442-60244  
TLX 851-825834

### Apple/Europe

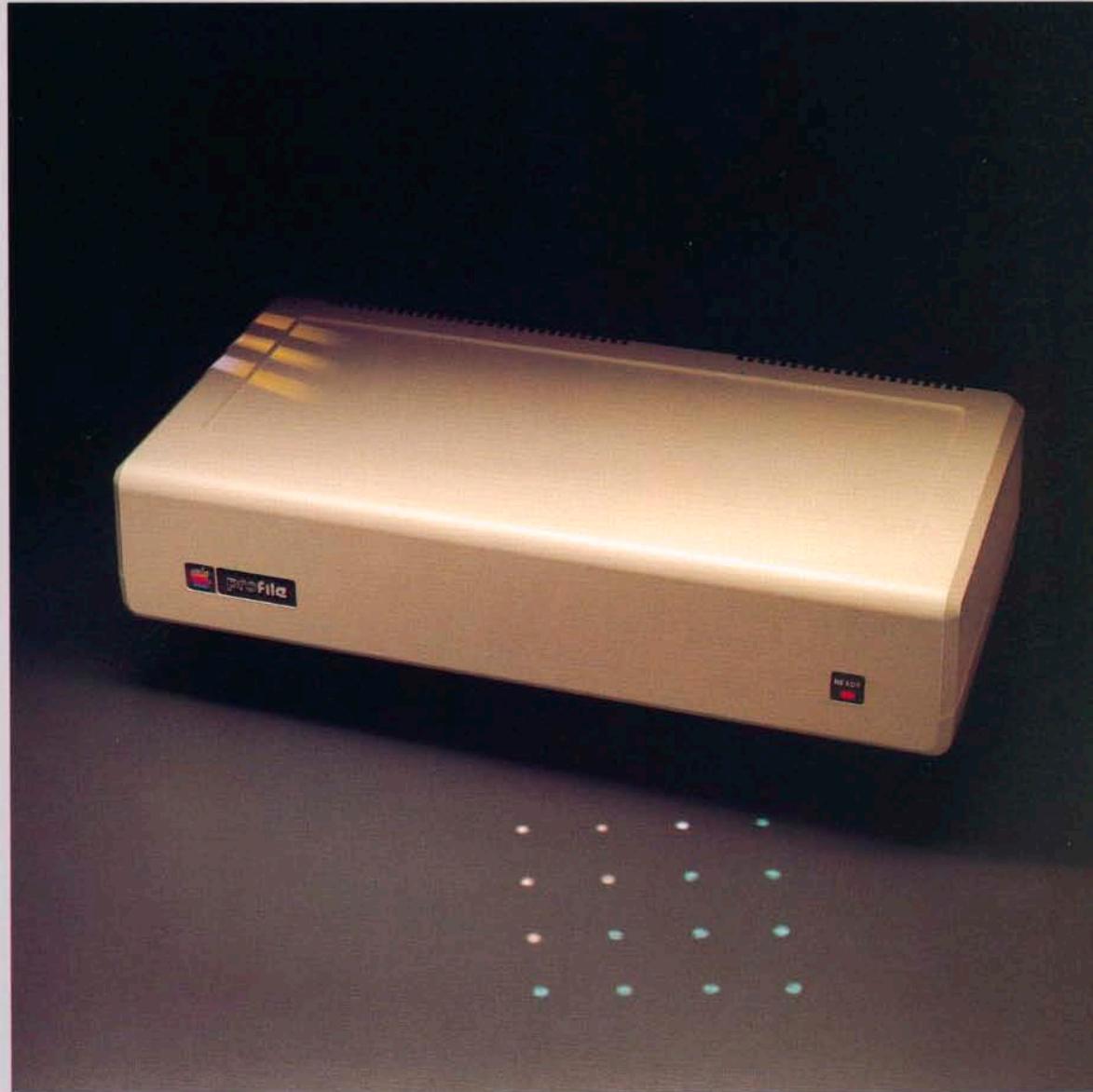
Apple Computer International  
5/7 rue de Charlies  
92200 Neuilly-sur-Seine  
France  
011-33-1-624-21-13  
TLX 842-630296

### Apple/Canada

Apple Canada  
875 Don Mills Road  
Don Mills  
Ontario, Canada M3C 1V9  
(416) 444-2531  
800-268-7637  
TLX 06-986561

Lisa

## Lisa ProFile



Apple's ProFile™ is a personal mass storage system that increases Lisa's storage capacity by five million bytes. The compact 5¼-inch hard-disk drive simply plugs into the back of the Lisa™ system.

ProFile's Winchester technology enables you to access data ten times faster than with conventional floppy disks. This allows you to tackle large projects more efficiently, access additional Lisa applications quickly, and easily store existing documents in one

place. ProFile is the ideal Lisa enhancement for professionals, office workers, and programmers—or anyone who needs to access large amounts of information quickly.

### **ProFile streamlines complex tasks.**

- Get five megabytes of storage (more than 1,200 pages of single-space typed text) on line.
- Access data at the rate of five million bits a second—about ten times faster than a conventional floppy disk drive.
- Store large financial models, graphics, and text documents in one place for fast access.
- Streamline program development by reducing the need to swap disks.

### **The integrity of your files is protected.**

- The sealed, nonremovable disk eliminates the possibility of accidentally damaging the disk.
- The built-in, intelligent controller automatically scans for error conditions and moves data out of marginal data blocks when necessary.
- When you turn the ProFile on, the controller automatically checks the integrity of each sector by analyzing all disk sur-

faces. If error conditions are detected, the controller attempts to remedy the situation.

### **A personal mass storage device that can be used in any work environment.**

- ProFile is compact, attractively styled, and lightweight.
- No fan or other cooling device is required, so it's especially quiet.
- Installing a ProFile couldn't be easier. Just plug it into Lisa's built-in parallel port.

### **ProFile is highly reliable and surprisingly inexpensive.**

- ProFile is designed to offer an MTBF (mean time between failures) of more than 10,000 hours.
- ProFile's data storage is very cost effective—less than one-tenth of a cent per byte.

## Specifications

### **Storage characteristics:**

- 4 data surfaces.
- 1 head per surface.
- 254 tracks per inch.
- 152 tracks per surface.
- 16 blocks per track.
- 512 bytes per sector (one block).
- 2432 sectors per surface.
- 5-megabyte data capacity (formatted).

### **Drive characteristics:**

- Seek-time distribution: 330 tracks per second.
- Average seek time: 180 milliseconds.
- Data transfer rate: 5 megabits per second.
- Rotational speed: 3600 RPM.
- Rotational start-up time: 20 seconds.
- Drive ready to operate: < 60 seconds.

### **Power requirements:**

- 110 V AC.
- 35 W.

### **Environmental requirements:**

- Operating temperature: 50° to 104° F (10° to 40° C).
- Storage temperature: -7.6° to 176° F (-22° to 80° C).
- Operating humidity: 20 to 80% noncondensing.
- Storage humidity: 1 to 95%.

### **Weight and dimensions:**

- Weight: 11 lb (5 kg).
- Height: 4.39 in. (11.15 cm).
- Width: 17.28 in. (43.89 cm).
- Depth: 8.81 in. (22.38 cm).

#### **Apple/U.S.**

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

#### **Apple/U.K.**

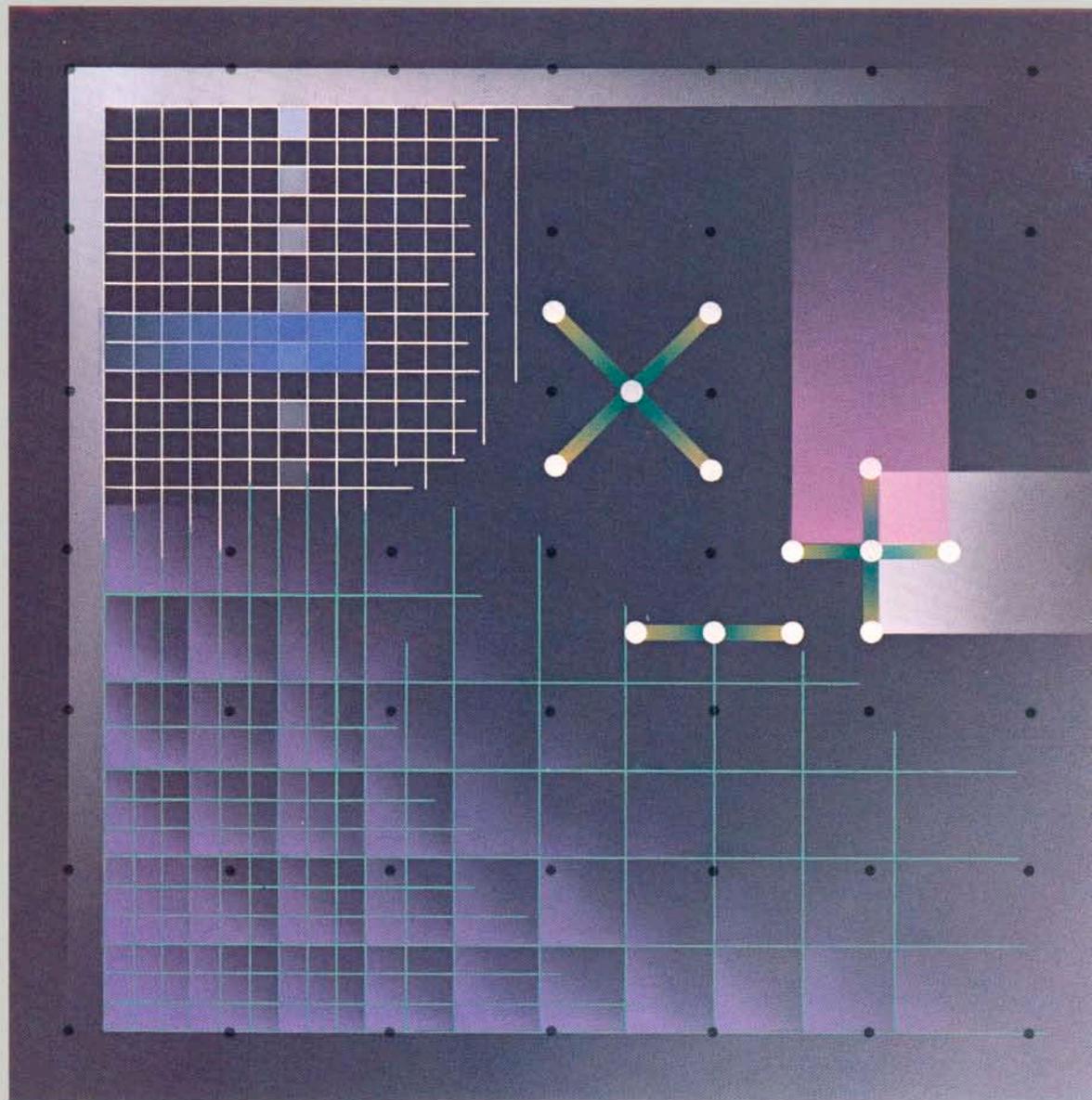
Apple Computer (U.K.) Ltd  
Eastman Way  
Hemel Hempstead  
Herts HP2 7HQ  
England  
011-44-442-60244  
TLX 851-825834

#### **Apple/Europe**

Apple Computer International  
5/7 rue de Chartres  
92200 Neuilly-sur-Seine  
France  
011-33-1-624-21-13  
TLX 842-630296

#### **Apple/Canada**

Apple Canada  
875 Don Mills Road  
Don Mills  
Ontario, Canada M3C 1V9  
(416) 444-2531  
800-268-7637  
TLX 06-986561



LisaCalc is a powerful electronic spreadsheet and financial modeling tool that helps you grasp the impact of even the most complex financial scenario. Its huge worksheet (255 rows by 255 columns) lets you test every variable that affects your decisions. And it's easy, because LisaCalc eliminates the need to learn a modeling language.

Once you've created a spreadsheet, LisaCalc lets you transfer that information into other LisaCalc documents, into LisaGraph for graphing, or into LisaWrite for inclusion in a memo or report.

In less than 30 minutes you'll be doing useful work with LisaCalc. Lisa's revolutionary Graphics Mouse Technology™ replaces confusing computer commands with simple graphic images.

Graphics, together with the mouse, a simple selecting device, let you create, revise, and print documents intuitively. And because basic operations work the same way in all Lisa™ applications, you'll learn other applications in even less time.

**LisaCalc spreadsheets and models enable you to see the important numbers in your profession clearly. They help you to make better, faster decisions and communicate them more effectively.**

**Perform arithmetic analyses quickly and easily.**

- No special computer language or commands are required.
- Use built-in functions and arithmetic operators, or create your own formulas.

**Analyze business and technical scenarios by examining "What if?" possibilities.**

- Assumptions and formulas are easy to edit.

- Spreadsheets recalculate automatically when new data is entered.
- To view how changes affect different portions of the model, split the screen horizontally, vertically, or in both directions.

**Graph data for further analysis or added impact.**

- Move data quickly and easily into LisaGraph for plotting.
- Your LisaCalc model and LisaGraph plot can be viewed on the same screen simultaneously.

This is the **LisaCalc** worksheet with data entered in the sheet's cells. You use the mouse to point to a cell, then enter data into that cell by typing in the numbers, formulas, or text you want. The program instantly computes all the information entered on the worksheet to produce answers to extremely complex problems.

**Menu Bar** All LisaCalc functions are selected from the menu bar. To print a document, for example, just move the mouse and select PRINT from the menu bar. Once printing is under way, you may continue working with Lisa, either in the same document, or in another application.

The screenshot shows the LisaCalc interface with a menu bar (File/Print, Edit, Type Style, Page Layout, Format, Protect, Calculate) and a spreadsheet titled 'Quarterly Budget'. The spreadsheet has columns for 'Project Budget - Fiscal Year 1983' and rows for various expense categories. A bar chart on the right compares 'Expense' and 'Budget' across four quarters. A status panel at the bottom shows 'Cells: B22' and 'Value (Blank):'. Below the spreadsheet, there are icons for 'Quarterly Reports', 'Sales Reports', and 'Sales Memo'.

	A	B	C	D	E	F
		1Q83	2Q83	3Q83	4Q83	TOTAL
5	Professional Staff	5	7	14	17	43
6	Support Staff	1	2	4	4	11
7	Total Salaries	\$ 68.00	\$101.22	\$200.94	\$242.38	\$ 612.54
8	Fringe Benefits	44.20	65.79	130.61	157.55	398.15
9	Facilities Overhead	14.40	21.60	43.20	50.40	129.60
10	Office Supplies	6.21	9.29	18.44	22.17	56.12
11	Books	0.18	0.27	0.54	0.63	1.62
12	Travel	9.00	13.50	27.00	31.50	81.00
13	Total Employee Expense	\$141.99	\$211.67	\$420.74	\$504.63	\$1279.03
14	Equipment Rental	0.30	0.60	1.20	1.20	3.30
15	Equipment Depreciation	0.45	0.68	1.35	1.58	4.05
16	Equipment Repair	0.23	0.34	0.68	0.79	2.02
17	Total Equip. Expenses	0.98	1.61	3.23	3.56	9.36
19	TOTAL EXPENSES	\$142.97	\$213.29	\$423.96	\$508.19	\$1,288.40
20	Projected Budget	\$205.00	\$290.00	\$380.00	\$525.00	\$1,400.00

**Mouse/Pointer** The mouse is a palm-size device that controls Lisa's pointer. It replaces all confusing special function keys and commands. The mouse is connected to Lisa by a thin cable. When you move the mouse, Lisa's pointer matches the movement on the screen.



**Cells** A cell is the intersection of a column and a row. You can use the mouse (or the keyboard) to select a cell, then you can enter text or numerical values.

**Desktop Manager** The Desktop Manager uses graphic symbols such as these to coordinate all the system's operations. For example, to work on a document, simply use the mouse to select an existing document or create a new one. When you're finished, use the mouse to put the document into a folder. The Desktop Manager also enables you to work with more than one document at a time.

**Columns and Rows** The maximum number of columns and rows is 255. The width of each column may be set individually from 1 to 80 characters.

**LisaGraph** More than one Lisa document may be on the screen at one time. To move information from LisaCalc to LisaGraph for example, simply use the mouse to select COPY from the EDIT menu. When you're ready to transfer the information into another document, select PASTE and your data is transferred—you don't even have to touch the keyboard.

**Scrolling** To view another part of your worksheet, simply use the mouse to select the arrows or pages in the corners of the document. Similarly, to stretch or contract the document, use the mouse to move the box at the bottom right-hand corner.

**Status Panel** These two lines provide information about the cell on which you are working. CELLS shows the coordinates (location) of the cell; VALUE shows the same data that appears in the cell; and FORMULA states the calculation (if any) that has been performed (such as, A1 + B1 + C1).

The screenshot shows the 'Edit' menu with the following options: Undo Last Change, Cut (⌘X), Copy (⌘C), Paste (⌘V), and Select All of Document (⌘A).

## Insert LisaCalc results into LisaWrite documents.

- Move your spreadsheet or model into a LisaWrite document as simply as you perform any other editing.
- Revise or reformat a LisaCalc spreadsheet while in LisaWrite.

## Customize models with different formats or typesyles.

- Modify your format with the

mouse—no retyping required.

- Vary the width of your columns with the mouse.
- Show currency with or without cents, commas, or dollar signs.

## Standardize data collection, and reports with formatted spreadsheets.

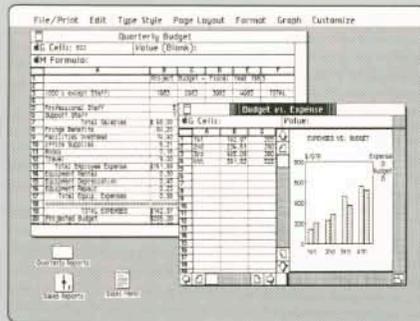
- Data entry personnel can be prompted by the CIRCLE MISSING VALUES feature.

- Protection feature ensures that a model cannot be over written accidentally.

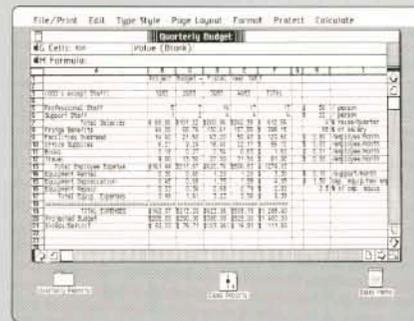
## Use special features to analyze financial and scheduling problems.

- Numbers are calculated to 15 digits.
- Built-in financial functions include net present value, annuity, and compound interest.
- Maximum model size is 255 rows by 255 columns.

- Dates, such as 1/4/82, and durations, such as 6 days or 3 years, can be built into your model.
- Built-in calendar adds or subtracts any number of days, weeks, months, or years (including leap years) to or from dates.



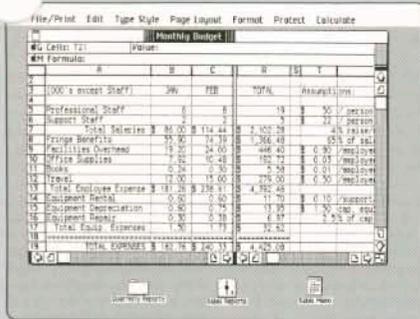
*LisaCalc data can easily be graphed in LisaGraph. Transferring the data between the two requires only three quick steps. Similar steps will incorporate a LisaCalc model into a LisaWrite document.*



*Customizing your LisaCalc model can be done at any time and requires no special commands. Use the mouse to "stretch" any column or format its contents.*

## Putting LisaCalc Data Into Graphs and Reports

- LisaCalc data can be transferred into LisaGraph or LisaWrite easily—use the mouse and the functions CUT and PASTE.
- After transfer into LisaWrite, LisaCalc worksheets can be edited, reformatted, given titles, footnotes, bold text, and much more.



*Splitting the screen opens windows into different portions of the model, allowing you to see the effects of changes immediately. More than one model can also be viewed on the screen simultaneously.*



*Special program functions make it easy to learn and use LisaCalc. Move the mouse to select one of the menu titles at the top of the screen. Press the mouse button and the menu appears. Select a function and LisaCalc does the rest.*

## "What If?" Scenarios

- Changing assumptions and formulas is radically simplified with LisaCalc—just point with the mouse, then type.
- Enter new data and LisaCalc recalculates automatically, quickly illustrating the impact on any scenario.
- To display important data from widely separated areas, worksheets can be "split" horizontally, vertically, or in both directions at once.
- Any model can be protected against inadvertent changes.

## Special Features for Scheduling and Finance

- Calculations are made to 15 digits for unsurpassed accuracy.
- Built-in functions include net present value, annuity factor, and compound interest factor.
- Dollars and cents can be formatted as desired.
- LisaCalc acknowledges dates (e.g., 1/4/82) and durations (e.g., 6 days or 3 years).
- A built-in calendar accurately adds or subtracts days, weeks, months, or years.
- LisaCalc automatically checks all dates to ensure their consistency.

## Customizing LisaCalc Worksheets

- Modifications require no typing—simply use the mouse.
- Columns can have different widths.
- Columns and rows may be added or deleted at any time.
- The contents of columns, rows, cells, and ranges of cells can be centered, or justified left or right.
- Currency can be shown with or without cents, commas, or dollar signs.
- A variety of typesyles is available.
- Page breaks are automatic; they can also be set manually.

## LisaCalc and Standardized Analyses and Reports

- LisaCalc creates standard templates for uniform data collection.
- LisaCalc templates can be filled in without learning LisaCalc.
- "Protection" features ensure that established templates cannot be changed accidentally.
- CIRCLE MISSING VALUES feature helps any data entry person place data in the right location.
- Arrow keys, numeric keypad, and mouse make data entry fast.

## LisaCalc—An Overview

- LisaCalc eliminates the need to learn a modeling language or special computer commands. The most complex models can be represented on LisaCalc's spreadsheet.
- Data analysis is simplified by built-in functions that include sum, average, net present value, if-then, and many more.
- Common arithmetic operators such as +, -, ×, ÷ are available.
- LisaCalc models can be as large as 255 columns by 255 rows.
- Maximum size of a LisaCalc model visible on the screen is 13 columns (of eight characters) by 28 rows.

**Basic learning time:**

- Less than 30 minutes.

**Maximum worksheet size:**

- 255 rows by 255 columns.
- Maximum model size visible—13 columns (8 characters wide) by 28 rows.

**Precision and accuracy:**

- Standard IEEE numerics for calculations and formatting provide unsurpassed accuracy.
- 15 digits for high-precision calculations.

**Editing:**

- Editing is done the same way as in other Lisa applications.
- Intracell editing.
- Cut and paste, copy, move, replace, delete.
- Insert new rows or columns.
- Copy values or formulas into other models.

**Formatting:**

- Left and right justification, and centering.
- Fit as many as 132 columns on an 8½ × 11-inch (215 x 279 mm) page.
- Variable column widths (1 to 80 characters).
- Integer, decimal, and exponential numbers, with variable number of digits after decimal or exponent.
- Various money formats (commas, dollar signs, cents).
- Brackets for negative money values.
- Fill pattern format.

**Functions:**

- +, -, ×, ÷.
- =, <, >, ≥, ≤, <>, AND, OR, NOT.
- Integer division, remainder.
- Sum, average, minimum, maximum, count, exponent.
- If-then-else.
- NPV, compound interest factor, annuity factor.
- Absolute value, integer portion, round off.
- Log, natural log, square root, sum of squares.
- Lookup, NA, error.
- Sin, asin, cos, acos, tan, atan.

**Date/calendar:**

- Specify dates as mm/dd/yy.
- Specify date parts as a number of days, months, or years.
- Add, subtract, and compare dates or date parts.
- Many functions work with dates or date parts.

**Calculation features:**

- Automatic and manual recalculation.
- Calculates until convergence is achieved.

**Data exchange:**

- Move data and models between LisaCalc documents.
- Move data and text into LisaGraph and LisaWrite.

**Special features:**

- "Protection" guards cells from being accidentally changed.
- CIRCLE MISSING VALUES highlights cells that are referenced in a formula but do not contain valid data.
- UNDO function cancels the effects of last operation.
- REVERT TO PREVIOUS VERSION undoes all changes made to the document since it was last saved.
- Up to 6 vertical or horizontal splits of the window.
- More than one worksheet on the screen at once.

**Printing:**

- "What you see is exactly what you get" fidelity.
- Automatic or manual page breaks.
- Print formulas or values.
- Apple's high-resolution Dot Matrix Printer (160 x 144 dots per inch; 6.2 x 5.6 dots per mm).
- Apple's Daisy Wheel Printer.
- Print one or multiple copies.
- Print whole model or selected pages.
- Print in horizontal or vertical formats.
- A variety of typestyles are available, including a small, 15-pitch size.
- Paper can be 8½ x 11 (215 x 279), 8½ x 14 (215 x 355), or 11 x 14 (279 x 355 mm) inches.

**Documentation:**

- Brief orientation guide to get you started in 30 minutes.
- Complete reference guide.
- Extensive step-by-step tutorial.
- Handy reference card.

**Apple/U.S.**

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

**Apple/U.K.**

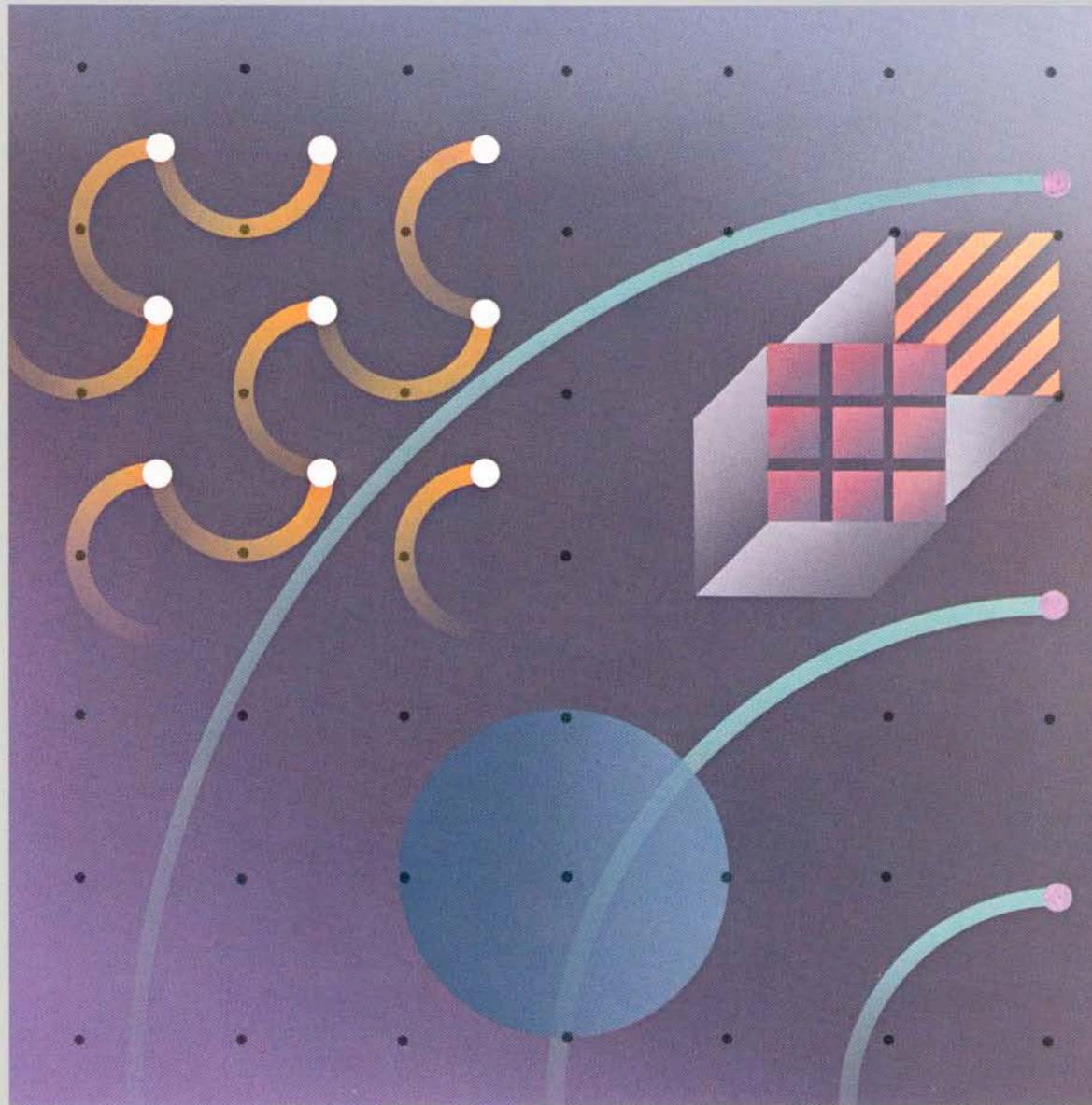
Apple Computer (U.K.) Ltd.  
Eastman Way  
Hemel Hempstead  
Herts HP2 7HQ  
England  
011-44-442-60244  
TLX 851-825834

**Apple/Europe**

Apple Computer International  
5/7 rue de Chartres  
92200 Neuilly-sur-Seine  
France  
011-33-1-624-21-13  
TLX 842-630296

**Apple/Canada**

Apple Canada  
875 Don Mills Road  
Don Mills  
Ontario, Canada M3C 1V9  
(416) 444-2531  
800-268-7637  
TLX 06-986561



LisaDraw is a unique graphics presentation tool that makes it easy to create flow charts, technical diagrams, maps, pictures, and symbols for reports and presentations. Creating lines, boxes, circles, and other geometrical shapes is as easy as moving the mouse along a tabletop. Combining these shapes lets you be as creative as you like. And adding text is elementary.

With LisaDraw you can save any creation for repeated use in other LisaDraw documents. Moreover, you can easily move LisaProject schedules and LisaGraph charts and graphs into LisaDraw for customization.

In less than 30 minutes you'll be doing useful work with LisaDraw. Lisa's revolutionary Graphics

Mouse Technology™ replaces confusing computer commands with simple graphic images. Graphics, together with the mouse, a simple selecting device, let you create, revise, and print documents intuitively. And because basic operations work the same way in all Lisa™ applications, you'll learn other applications in even less time.

**LisaDraw uses the power and flexibility of Lisa to give you capabilities far beyond those of virtually any other graphics program. With the ability to express your ideas visually — through high-quality graphics — you'll communicate more easily and effectively.**

**A picture is worth a thousand words.**

- LisaDraw's lines, boxes, and text let you illustrate complex aspects of your business with flow charts.
- Create and revise drawings for presentations, training manuals, reports, sales curves, sketches, and more.

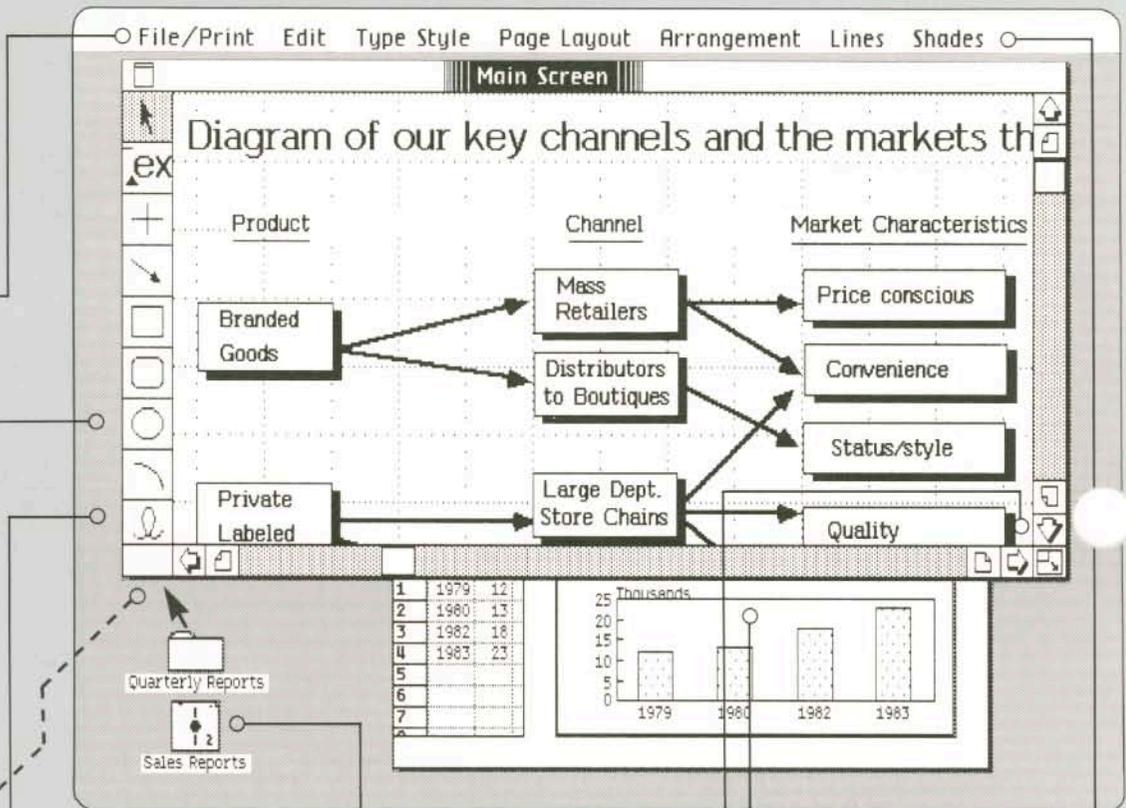
**Work with graphics as easily as with text.**

- Drawing lines, boxes, circles, and other common shapes takes just two simple moves of the mouse.
- Changing lines and shapes, or moving them, is done with the mouse. There are no commands to remember.

Except for generating text, everything created in **LisaDraw** is done with the mouse. Use it to select from the palette the shape you'd like to draw; the pointer then draws figures of that shape. To add text, simply select the TEXT box from the palette. As in other Lisa applications, you can also use the mouse to select items from the menu bar.

**Menu Bar** All LisaDraw functions are selected from the menu bar. To print a document, for example, just move the mouse and select PRINT from the menu. Once printing is under way, you may continue working with Lisa, either in the same document, or in another application.

**Mouse/Pointer** The mouse is a palm-size device that controls Lisa's pointer. It replaces all confusing special function keys and commands. The mouse is connected to Lisa by a thin cable. When you move the mouse, Lisa's pointer matches the movement on the screen.



**Drawing Freestyle** Use this option for freestyle drawings. Anywhere you move the cursor, the line follows. And you can even "smooth" it to take the kinks out.

**Drawing Circles** To draw perfectly rounded circles, use the mouse to select the circle from the palette; moving the mouse will then draw circles on the screen.

**Desktop Manager** The Desktop Manager uses graphic symbols such as these to coordinate all the system's operations. For example, to work on a document, simply use the mouse to select an existing document or create a new one. When you're finished, use the mouse to put the document into a folder. The Desktop Manager also enables you to work with more than one document at a time.

**Scrolling** To view another part of your LisaDraw document, simply use the mouse to select the arrows or pages in the corners of the document. Similarly, to stretch or contract the document, use the mouse to move the box at the bottom right-hand corner.

**Shades Menu** Once you have the shapes you want, fill them in with your choice of 36 different patterns.

**LisaGraph** More than one Lisa document may be on the screen at one time. To move information from LisaGraph to LisaDraw, for example, simply use the mouse to select COPY from the EDIT menu. When you're ready to transfer the information into the LisaDraw document, select PASTE and your data is transferred — you don't even have to touch the keyboard.

Edit	Search	Type Style
Undo Last Change		
Cut		⌘X
Copy		⌘C
Paste		⌘V
Select All of Document ⌘A		

- You get instant feedback on everything you do—there's no waiting to see the results. This makes it easy to create a picture diagram that's just the size and shape you want.

**What you see on the screen is exactly what you get on the printed page.**

- Choose from four different sizes and three styles of text, all of which can be displayed and printed in bold, italic, underlined, or shadow—or any combination.
- Apple's high-resolution Dot Matrix and Daisy Wheel Printers both produce unsurpassed graphics and text suitable for reports or for copying onto overhead transparencies.

**The way a business works can be complex—LisaDraw helps you get a handle on it.**

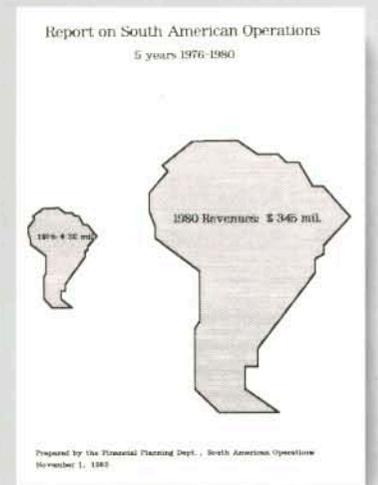
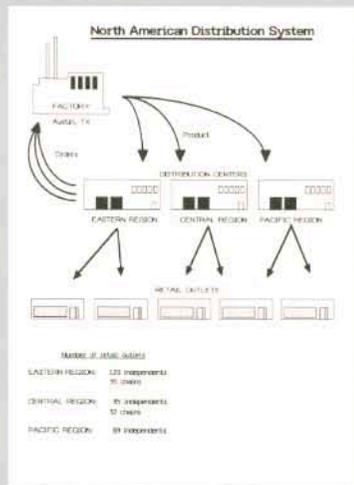
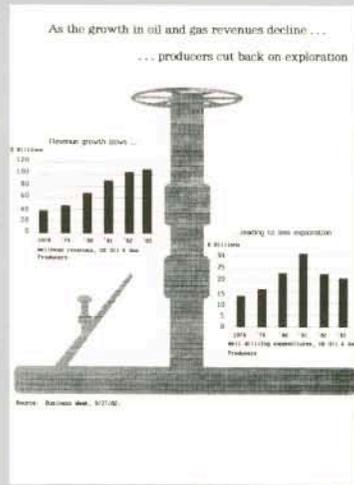
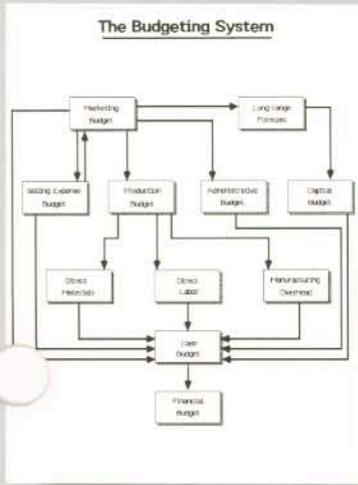
- Different shapes and shadings can represent kinds of activities, processes, or systems; and arrows show interdependencies.
- Organization charts and floor plans are easy; the optional grid helps you align objects perfectly.
- Add text anywhere, at any time.
- LisaDraw can accommodate illustrations up to 60 pages.

**Use LisaDraw to customize charts and graphs from other applications.**

- Moving a LisaGraph or Lisa-Project chart into LisaDraw is quick and easy.
- Revise any graph or chart. Change sizes, shapes, patterns, and locations of bars, pies, lines, and titles.

LisaDraw is a revolutionary tool. It enables you to draw lines, circles, boxes, and any other geometrical shapes. It also lets you add text to your drawings.

However, the real beauty of LisaDraw is using it to customize reports, memos, presentations—anything that you want to look good—with professional-quality graphics. And you can do it all at your desk, using only the mouse and the keyboard.

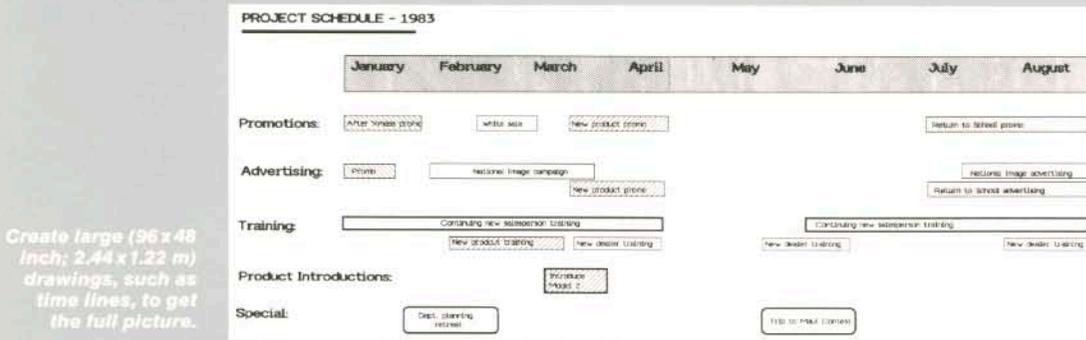


Create professional-quality diagrams, which can then be made into transparencies for sales, marketing, and other presentations.

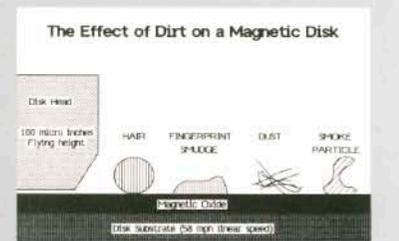
Add dramatic impact to your business charts or graphs.

Illustrate interdependencies among jobs or projects, or draw schematic drawings.

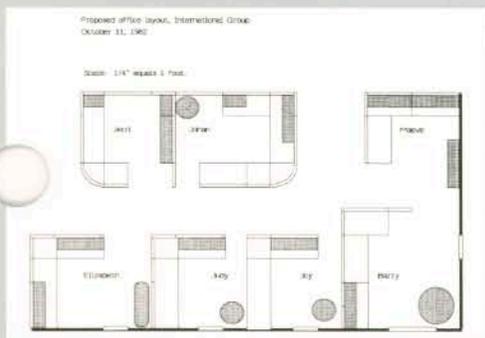
Illustrate important geographic information with maps or regional drawings.



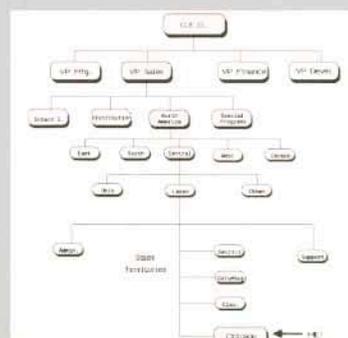
Create large (96 x 48 inch; 2.44 x 1.22 m) drawings, such as time lines, to get the full picture.



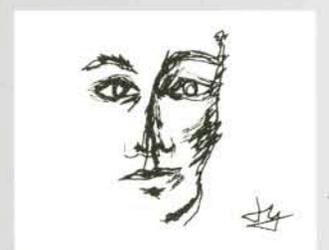
Create simple illustrations to help describe complex situations.



Create organization charts that can be saved and updated when the staff changes.



Draw floorplans or office diagrams to scale.



Create sketches and original artwork as you would by hand.

**Basic learning time:**

- Less than 30 minutes.

**Maximum drawing size:**

- 32 square feet (2.9 square meters) (about 60 pages).

**Drawing:**

- Palette selections:
  - squares and rectangles (with and without rounded corners).
  - circles and ellipses.
  - horizontal, vertical, and diagonal lines.
  - arcs.
  - polygons (including triangles).
  - freehand curves.
- 36 patterns for filling shapes.
- Four line thicknesses (fine, narrow, medium, wide).
- Three line shades (black, grey, white).
- Lines can have arrowheads at one or both ends.

**Graphic editing:**

- Combine more than one existing LisaDraw document.
- Move any object or shape.
- Place objects in front of or behind others.
- Shrink or expand any object yet maintain its shape.
- Reshape freehand curves, arcs, and polygons.
- Automatically smooth curves.
- Copy or delete any object.
- Change line thickness or line shade.
- Change pattern of shading inside a shape or object.
- Group shapes or objects to move, copy, or delete them together.

**Text editing:**

- Add text to any part of drawing
  - just point with mouse and type.
  - edit just as you would with LisaWrite.
- Functions available:
  - cut and paste.
  - copy and move.
  - delete.
  - change typestyles.

**Alignment aids:**

- Grids displayable on screen in various sizes.
- Rulers displayable on screen
  - horizontal and vertical.
  - marked in inches, centimeters, or in user-defined increments.
- Align edges of objects.
- Measure distance between two points and the size of objects.

**Typestyles:**

- A variety of typestyles, including large presentation sizes (1/4–1/3-inch; 6.35 x 8.47 mm tall).
- Proportionally spaced styles.
- Type can be bold, italic, shadow, hollow, underlined, or any combination.

**Special features:**

- Move LisaGraph and LisaProject charts into LisaDraw for further customization quickly and easily, without touching the keyboard.
- LOCK allows you to protect creations from accidental editing.
- UNDO function cancels effects of last operation.
- REVERT TO PREVIOUS VERSION undoes all changes made to the document since it was last saved.
- Horizontal and vertical scrolling.

**Printing:**

- "What you see is exactly what you get" fidelity.
- Automatic page breaks.
- Apple's high-resolution Dot Matrix Printer (160 x 144 dots per inch; 6.2 x 5.6 dots per mm).
- Apple's Daisy Wheel Printer.
- Paper can be 8½ x 11 (215 x 279), 8½ x 14 (215 x 355), or 11 x 14 (279 x 355 mm) inches.
- Print one or multiple copies.
- Print whole drawing or selected pages.
- Print in horizontal or vertical formats.

**Documentation:**

- Brief orientation guide to get you started in less than 30 minutes.
- Complete reference guide.
- Extensive step-by-step tutorial.
- Handy reference card.

**Apple/U.S.**

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

**Apple/U.K.**

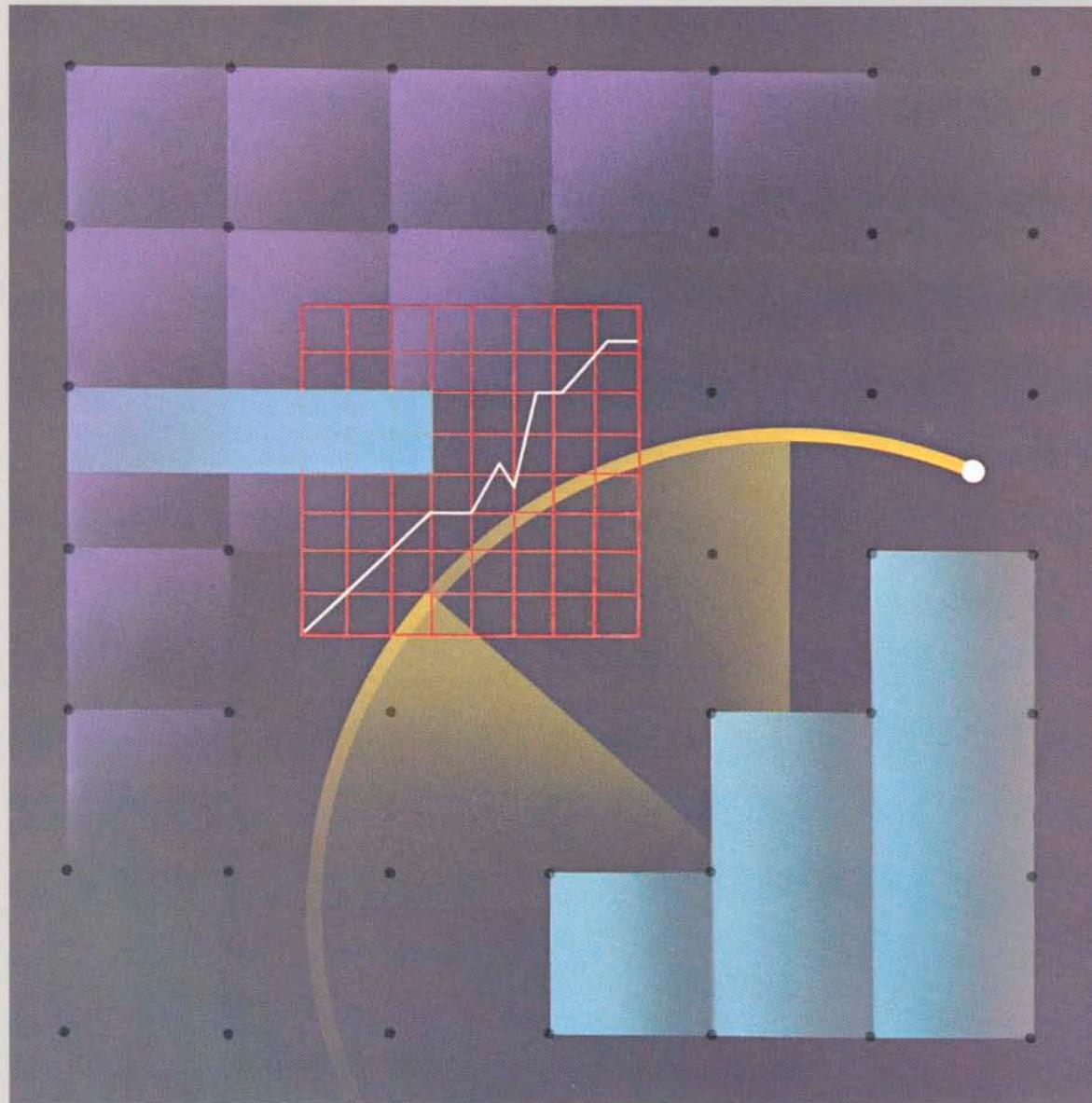
Apple Computer (U.K.) Ltd.  
Eastman Way  
Hemel Hempstead  
Herts HP2 7HQ  
England  
011-44-442-60244  
TLX 851-825834

**Apple/Europe**

Apple Computer International  
5/7 rue de Chartres  
92200 Neuilly-sur-Seine  
France  
011-33-1-624-21-13  
TLX 842-630296

**Apple/Canada**

Apple Canada  
875 Don Mills Road  
Don Mills  
Ontario, Canada M3C 1V9  
(416) 444-2531  
800-268-7837  
TLX 06-986561



LisaGraph makes clear, concise graphs from even the most complex data. Moreover, LisaGraph creates those graphs automatically. Enter data in LisaGraph's data table — alongside, a presentation quality graph appears instantly. And it's easy, because there's no need to learn a graphics language.

LisaGraph makes bar, line, pie and scatter graphs. You can transfer LisaGraph charts and graphs into LisaDraw for extensive customization and create graphs from LisaCalc tables.

In less than 30 minutes you'll be doing useful work with LisaGraph. Lisa's revolutionary Graphics Mouse Technology™

replaces confusing computer commands with simple graphic images. Graphics, together with the mouse, a simple selecting device, let you create, revise, and print documents intuitively. And because basic operations work the same way in all Lisa™ applications, you'll learn other applications in even less time.

**LisaGraph simplifies complex data. Moreover, it simplifies computer graphing, which in turn simplifies your real work—making decisions and communicating those decisions to others.**

**Give your data strong, graphic impact.**

- Data entered into the table is plotted automatically on a graph.
- Both data and graph are always visible on the screen.

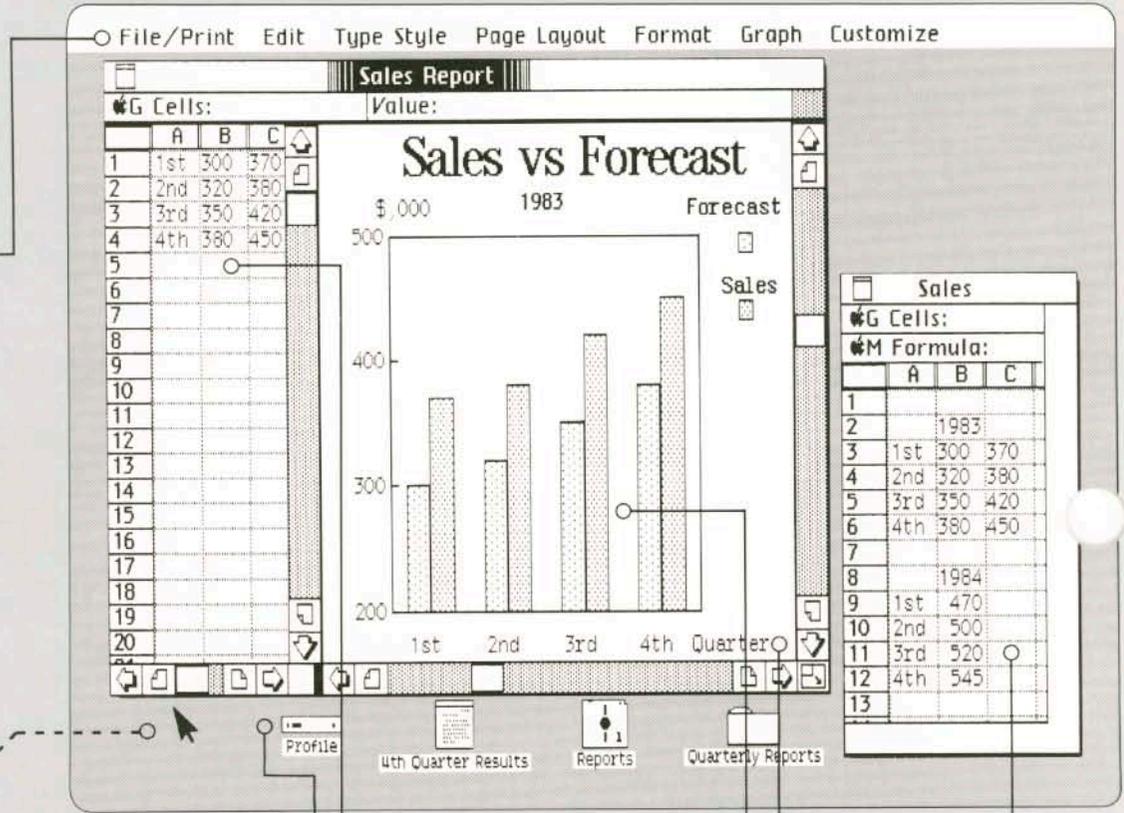
**Find the most effective graphic formats almost instantly.**

- LisaGraph creates bar, line, mixed bar/line, pie, and scatter graphs.
- You can change graph types instantly without touching the keyboard. Just use the mouse to select the graph of your choice.

**LisaGraph** displays all your data on the screen. Everything is always visible—your data entries, the graph itself, and all program functions. Simply use the mouse to point to what you want, press the mouse button, and LisaGraph does the rest.

**Menu Bar** All LisaGraph functions are selected from the menu bar. To print a document, for example, just move the mouse and select PRINT from the menu. Once printing is under way, you may continue working with Lisa, either in the same document, or in another application.

**Mouse/Pointer** The mouse is a palm-size device that controls Lisa's pointer. It replaces all confusing special function keys and commands. The mouse is connected to Lisa by a thin cable. When you move the mouse, Lisa's pointer matches the movement on the screen.



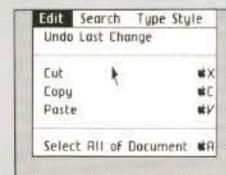
**Desktop Manager** The Desktop Manager uses graphic symbols such as these to coordinate all the system's operations. For example, to work on a document, simply use the mouse to select an existing document or create a new one. When you're finished, use the mouse to put the document into a folder. The Desktop Manager also enables you to work with more than one document at a time.

**Data Table** Graph data is entered directly into the data table. Point to the table's cells with the mouse, then type.

**LisaCalc** More than one Lisa document may be on the screen at one time. To move information from LisaCalc to LisaGraph for example, simply use the mouse to select COPY from the EDIT menu. When you're ready to transfer the information into another document, select PASTE and your data is transferred—you don't even have to touch the keyboard.

**Scrolling** To view another part of your LisaGraph document, simply use the mouse to select the arrows or pages in the corners of the document. Similarly, to stretch or contract the document, use the mouse to move the box at the bottom right-hand corner.

**Graph Area** As soon as data is entered, LisaGraph automatically makes it into a bar graph. Data remains conveniently displayed next to the graph. The graph plots up to eight different sets of data and 2,000 data points.



**Examine "What if?" possibilities — and see the scenarios graphed automatically.**

Data changes are replotted immediately.  
Revising data is elementary. Select with the mouse, then retype.

**Easily edit and customize any graph's layout.**

- Edit all elements of the worksheet — graph title, subtitle, axes labels, and footnotes.
- Add titles and annotations anywhere on the graph.
- Transfer your graph into LisaDraw to customize it further.

**Include crisp, clear printouts in your reports or presentations.**

- Quickly and easily bring in LisaCalc values for instant plotting — all without touching the keyboard. Move LisaGraph values into LisaCalc just as easily.
- A variety of timesteps, including large presentation-size styles, gives a typeset look.

**What you see on the screen is exactly what you get on the printed page.**

- Lisa's revolutionary visual fidelity is exactly reproduced by Apple's high-resolution Dot Matrix and Daisy Wheel Printers.



*Labels for the x and y axes are supplied automatically, from information you've provided in the data table. You can add graph titles, subtitles, footnotes, legends, and floating labels — all in different timesteps, if desired.*

**Working With LisaGraph**

- Changing data is elementary. Select with the mouse and retype.
- Graphs are replotted instantly when you change your data.
- Graph title, subtitle, axis labels, and footnotes can all be edited.
- Grid lines and legends can be added automatically.
- Lisa automatically sets axis ranges and increments; users may easily customize them at any time.
- Free-floating titles and annotations can be added anywhere on the graph. Select with the mouse, then type.
- Titles can be bold, italic, or underlined, or any combination.
- Graphs can be easily moved into LisaDraw to customize them further.

**Some Important LisaGraph Advantages**

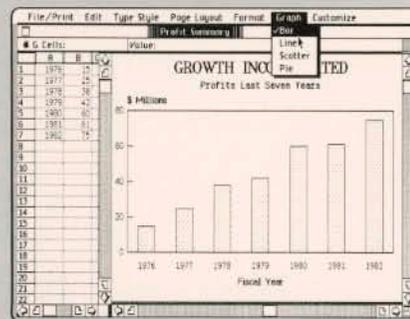
- LisaGraph eliminates the need to learn a graphics language; data entered into the LisaGraph table is plotted automatically.
- There is no "data entry mode"; data is entered directly into the table — just select with the mouse and type.
- Both data and graph are always shown side by side on the screen.
- Information from LisaCalc models can be transferred directly into LisaGraph for immediate plotting as simply as you perform any basic editing. The LisaCalc models can be displayed on the "desktop" right alongside your graph.

**Printing Your Results**

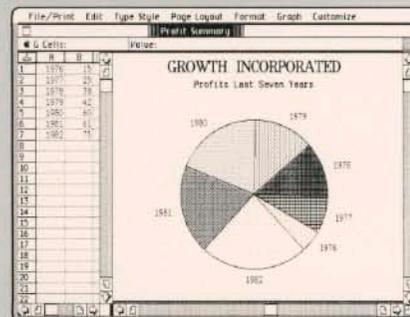
- Graphs can be printed in four different sizes — 1/4 page, 1/3 page, 1/2 page, and full page.
- Apple's Dot Matrix and Daisy Wheel Printers both produce unparalleled graphics and text.
- The Apple Dot Matrix Printer produces quality copy for overhead transparencies.
- Large presentation-size timesteps give a professional typeset appearance.

**Selecting A Graph**

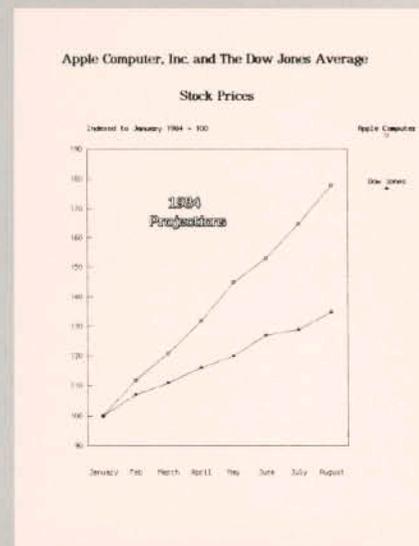
- Bar, line, mixed bar/line, pie, and scatter graphs are available.
- Graph type can be instantly changed without touching the keyboard. Use the mouse to select a new graph type from the menu — and the graph is instantly redrawn.



*Change graph types by using the mouse to move the pointer along the menu bar. Stop the pointer on GRAPH, then press the mouse button. The GRAPH menu instantly appears.*



*Select a graph type by moving the pointer down the menu. Use the mouse button to select PIE; LisaGraph does the rest automatically.*



*LisaGraph produces high-resolution printouts on either Apple's Dot Matrix or Daisy Wheel Printers. What you see on the LisaGraph screen is what you get on the page.*



### Basic learning time:

- Less than 30 minutes.

### Graph types:

- Bar, line, mixed bar/line, clustered bar (up to 8 bars per cluster), scatter, pie.

### Maximum data points:

- More than 2,000.

### Titles:

- Graph title, subtitle, x axis title, y axis title, footnotes, legends.
- Free-floating titles can be added anywhere on graph.

### Data entry:

- Simple table for data entry.
- Column widths in data table are easily adjustable.
- Entered data is graphed instantly.
- Table and graph appear simultaneously.
- Copy data from LisaCalc model to LisaGraph in three quick steps.

### Editing:

- Editing is done the same way as in other Lisa applications.
- Editing of data within cells.
- Cut, paste, and copy.
- Edit titles on the graph.
- Insert new row or column in data table.
- Transfer a graph into LisaDraw to customize it further or include it in another drawing.

### Formatting:

- Grid lines (on or off).
- Legends (on or off).
- Four graph sizes (1/4, 1/3, 1/2, full page).
- Manual or automatic determination of axis ranges and increments.
- For titles, choose from a variety of typestyles, including large presentation sizes.
- Title can be bold, italic, underlined, shadow, hollow, or any combination.
- Table formatting features include variable width columns; left, right, or center alignments; integer, decimal, scientific, or money formats.

### Performance:

- Graph replotted immediately (usually in less than one second) when data is entered or changed.
- Instant feedback on all operations, editing, data and text entry.

### Special features:

- UNDO function cancels effects of last operation.
- REVERT TO PREVIOUS VERSION undoes all changes made to the graph since it was last saved.
- More than one document can be viewed on the screen at the same time.
- Enlarge or shrink viewing areas for graph or data-entry table.

### Printing:

- "What you see is exactly what you get" fidelity.
- Apple's high-resolution Dot Matrix Printer (160 x 144 dots per inch; 6.2 x 5.6 dots per mm).
- Apple's Daisy Wheel Printer.
- Print graph and/or table of data.
- Print in horizontal or vertical formats.
- Paper can be 8 1/2 x 11 (215 x 279), 8 1/2 x 14 (215 x 355), or 11 x 14 (279 x 355 mm) inches.
- Print single or multiple copies.

### Documentation:

- Brief orientation guide to get you started in 30 minutes.
- Complete reference guide.
- Extensive step-by-step tutorial.
- Handy reference card.

#### Apple/U.S.

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

#### Apple/U.K.

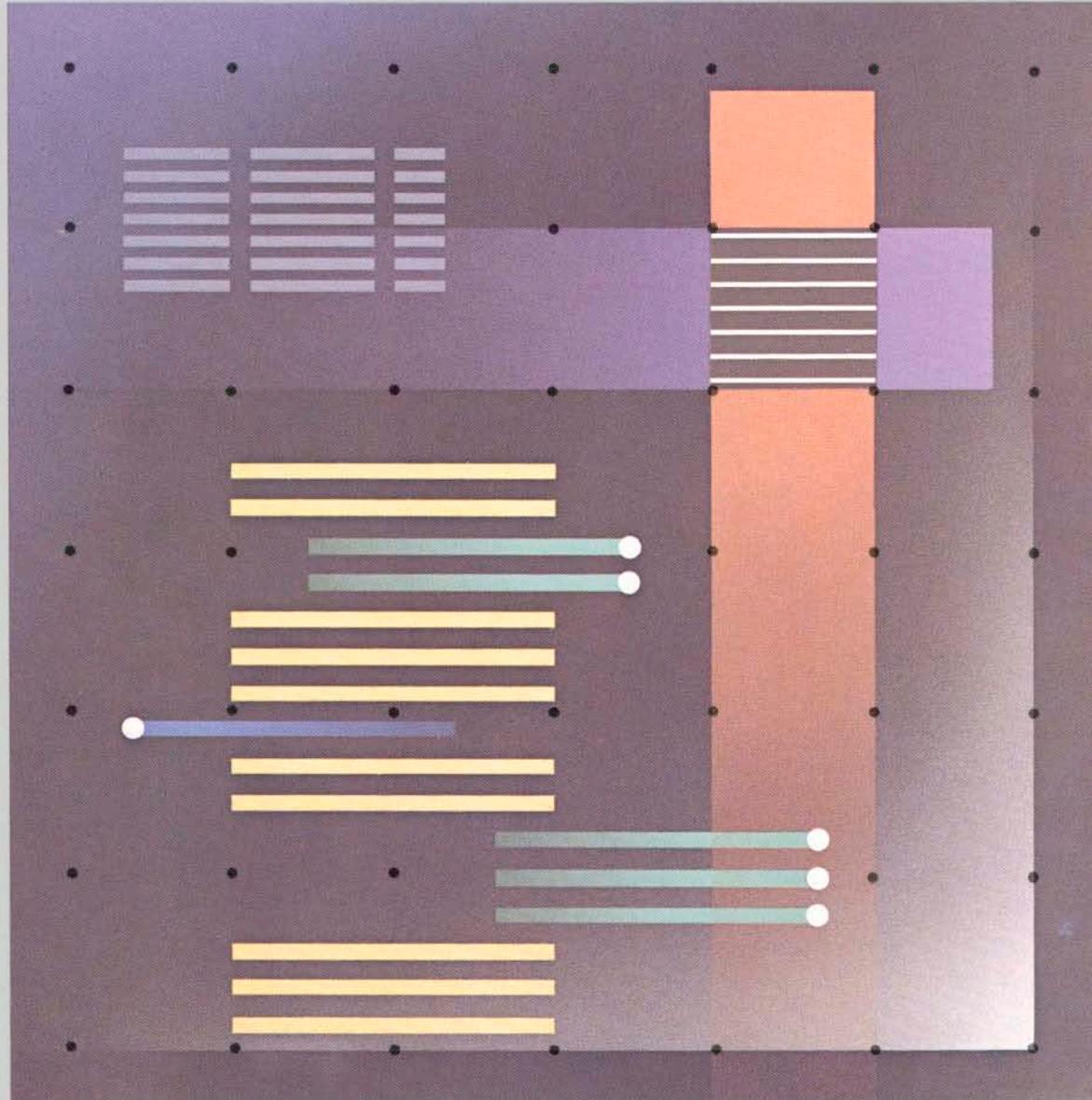
Apple Computer (U.K.) Ltd.  
Eastman Way  
Hemel Hempstead  
Herts HP2 7HQ  
England  
011-44-442-80244  
TLX 851-825834

#### Apple/Europe

Apple Computer International  
5/7 rue de Chartres  
92200 Neuilly-sur-Seine  
France  
011-33-1-624-21-13  
TLX 842-630296

#### Apple/Canada

Apple Canada  
875 Don Mills Road  
Don Mills  
Ontario, Canada M3C 1Y9  
(416) 444-2531  
800-268-7637  
TLX 06-986561



LisaList helps you create and maintain all types of lists in a personal database. With it you can easily and quickly sort through even the most detailed lists—client histories, billing records, distribution lists—for exactly the data you need.

Manipulating this data is easy too, because there's no special command language to learn. And LisaList shows you exactly how your list will print.

In less than 30 minutes you'll be doing useful work with LisaList. Lisa's revolutionary Graphics Mouse Technology™ replaces confusing computer commands with simple graphic images.

Graphics, together with the mouse, a simple selecting device, let you create, revise, and print documents intuitively. And because basic operations work the same way in all Lisa™ applications, you'll learn other applications in even less time.

**LisaList makes it easy to create and maintain even the most complex lists. Simple operations allow you to organize an existing list so you can quickly find the information you need.**

**Organize information for quick reference and easy handling.**

- Data is entered directly into the list—there is no special command language to learn.
- Changes made to the list are automatically integrated into the format and instantly shown.

**Customize lists for added impact.**

- Lists may contain as many as 100 columns.
- Each column may be assigned one of eight data types, such as text, zip code, money, or telephone numbers.

**Search and sort complex lists in seconds.**

- Sort lists by information in one or more columns.

This is a typical **LisaList** worksheet. "Name" the appropriate columns, then enter your information into the columns and rows. You can revise or change the list's format with simple selections from the menu bar.

**Menu Bar** All LisaList functions are selected from the menu bar. To print a document, for example, just move the mouse and select PRINT from the menu. Once printing is underway, you may continue working with Lisa, either in the same document, or in another application.

**Mouse/Pointer** The mouse is a palm-size device that controls Lisa's pointer. It replaces all confusing special function keys and commands. The mouse is connected to Lisa by a thin cable. When you move the mouse, Lisa's pointer matches the movement on the screen.



File/Print Edit Type Style List

**Employees**

Name	Department	M/S	Ext.	Hire Date	Hiring Council	Sales Task Force
Adams, Mike	Facilities	1-S	2906	Apr 1, 80	no	no
Agtang, John	Service	5-R	2940	Sep 27, 77	no	yes
Bloomfield, Jim	Engineering	3-I	3165	Jul 15, 81	no	no
Chavez, Steve	Admin	8-E	3489	Feb 2, 79	yes	yes
Childress, Bonnie	Distribution	4-E	2017	Mar 14, 81	no	yes
Cunningham, Dave	Mailroom	8-W	2885	Jun 1, 81	no	no
Day, Bob	Accounting	1-D	3483	May 25, 82	yes	yes
Durk, Edwina	Pubs	4-E	3313	Jan 15, 80	yes	no
Eastwood, Donna	Purchasing	9-D	2078	Aug 13, 80	no	yes
Eilers, Wayne	Engineering	1-D	2699	Sep 12, 79	yes	no
Emani, Donald	Marketing	3-R	2645	Nov 1, 80	yes	no
Goodman, Conway	Personnel	9-G	2608	Nov 15, 80	no	no
Gregory, Jim	Traffic	4-D	3572	Feb 15, 81	no	no
Gustavo, Mark	Payroll	4-S	3206	Jun 16, 82	no	no
Hillman, Liz	Admin	7-R	2031	Jan 15, 83	no	no

**INTER-OFFICE MEMO**

To: Wayne Eilers  
 From: Thomas Jones  
 Subject: 2nd Quarter Performance  
 Date: Jan 15, 1982

Congratulations!!!! Indications are that this will be the best quarter in the history you know you have been working very hard for this and let me assure you that your effort

Quarterly Reports  
Sales Reports

**Desktop Manager** The Desktop Manager uses graphic symbols such as these to coordinate all the system's operations. For example, to work on a document, simply use the mouse to select an existing document or create a new one. When you're finished, use the mouse to put the document into a folder. The Desktop Manager also enables you to work with more than one document at a time.

**Field** A field is formed by the intersection of a row and a column. Data entered into a list appears in the specific field and in the status panel.

**LisaWrite** More than one Lisa document may be on the screen at one time. To move the contents of any individual field from LisaList to LisaWrite, for example, simply use the mouse to select COPY from the EDIT menu. When you're ready to transfer the information into another document, select PASTE and your data is transferred—you don't even have to touch the keyboard.

**Status Panel** Data that appears in a selected field also appears in the status panel. LisaList enables you to preset the column width to display only some of the data within a column. In that case, the status panel will show you the entire contents of the field to which the pointer points.

**Columns and Rows** Rows may contain as many as 990 characters (letters, numbers, spaces) and may be divided into 100 columns of varying width. A list may contain approximately 600,000 characters (e.g., 10,000 rows of 60 characters each, or 6,000 rows of 100 characters).

**Scrolling** To view another part of your LisaList document, vertically or horizontally, simply use the mouse to select the arrows or pages in the corners of the document. Similarly, to stretch or contract the document, use the mouse to move the box at the bottom right-hand corner.

Edit Search Type Style

Undo Last Change

Cut #X  
 Copy #C  
 Paste #V  
 Select All of Document #R

- Find all records that match certain criteria, such as people hired before 01/04/82.

### Create many different reports from one master list.

- Display or print individual columns.
- Change the order in which columns appear on the report.
- Change the format, name, or typestyles of the report.

### Modify lists easily to suit your specific needs.

- Add or remove columns at any time.
- Temporarily "hide" columns so they're not displayed.
- Change display formats without re-entering the data.

### Preserve the integrity of your data.

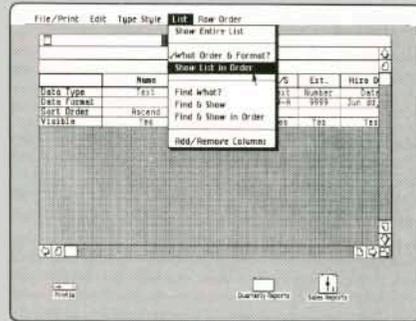
- Upon entry, data is automatically checked against the chosen data type for consistency.
- Built-in file-recovery mechanisms protect data from power fluctuations and media failures.

### What you see on the screen is exactly what you get on the printed page.

- Apple's high-resolution Dot Matrix and Daisy Wheel Printers both produce LisaList documents that are suitable for reports or for copying onto transparencies.



LisaList protects you from inadvertently entering the wrong type of data into a particular column. Here, an "incorrect" month was entered into a column designated for dates.



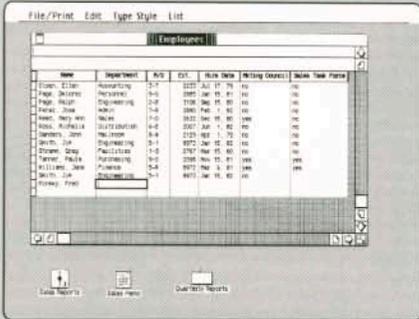
Selecting ASCENDING from the ROW ORDER menu enables you to see an alphabetical listing of employees in the list. Choosing SHOW LIST IN ORDER from the LIST menu displays your newly sorted list.

### Built-in Quality Control

- You may designate any one of eight data types (text, number, date, time, zip code, phone number, social security number, and money) for each column.
- LisaList automatically checks data entered into a column for consistency with that column's data type—and warns of any inconsistencies.
- A built-in file-recovery mechanism helps LisaList retrieve lost portions of a list in the event of a power fluctuation or media failure.

### Search and Sort Even the Most Complex Lists

- Search criteria are specified by simply filling in a table.
- Search criteria may be specified for one or more columns.
- Comparisons (e.g., before 11/1/81; more than \$100) may be specified in the search criteria.
- Rows can be sorted or arranged in ascending or descending order by the contents of one or more columns.



From an existing master list, you can create many different reports, each one tailored to meet a different need.

The width of each column is flexible so you can set it as wide as necessary. You can also change the column width at any time.

### Create and Edit Lists Easily

- LisaList requires no special command language.
- All entries to a list are automatically formatted.
- The effect of any change you make to a list immediately appears on the screen.
- Lists may contain up to 100 columns, which can be added or removed at any time.
- Column width may be changed at any time.
- The name of a column may be up to 120 characters in length and may be changed at any time.
- Columns may be assigned one of eight data types.
- You may select one of several display formats for each data type and change the display format without reentering data.



### Create Customized Reports

- Individual columns or rows may be specified for display or printing.
- Column order can be changed within the list.
- Lists may be printed in one of several typestyles and sizes.
- Lists are printed exactly as they are displayed.
- Columns can be temporarily "hidden" so they will not be displayed or printed.

**Basic learning time:**

- Less than 30 minutes.

**Maximum list size:**

- Approximately 600,000 bytes (for example, 6,000 rows of 100 characters, or 10,000 rows of 60 characters). System chooses the optimum storage structure based on the data types chosen.

**Maximum record (row) size:**

- 990 bytes. Supports variable-length records.

**Maximum number of fields (columns) per record (row):**

- 100.

**Data types supported:**

- Text (the default data type).
- Number.
- Date.
- Money.
- Time.
- Social Security number.
- Phone number.
- Zip code.

**Entering/Formatting data:**

- Data is automatically checked for consistency with the data type designated for the column.
- Data is automatically formatted according to a format created by the user, or a default format.
- Data formats may be changed at any time; previously entered data will automatically be reformatted. Note: The data type selected for a given column may not be changed once the list is created.
- Variable-width display format allows for entries larger than the column width established by the user.

**Editing:**

- At any time you may:
  - Add or delete columns.
  - Insert, update, and delete records (rows) with the same editing operations (cut, paste, copy, clear) of other Lisa applications.
  - Reorder columns.
  - Alter column width.
  - Temporarily "hide" columns you don't want in a particular report.
  - Rename any or all columns.

**Sorting:**

- Lists can be sorted in ascending or descending order.
- Complex data types, such as time and date, can be sorted (e.g., 11:00 A.M. comes before 4:00 P.M.).
- Multiple sort fields may be specified by filling in a simple table.

**Searching:**

- Search criteria may be specified by filling in a simple table.
- Search criteria may be specified for any number of fields.
- Search criteria include equal to, greater than, greater than or equal to, less than, less than or equal to, not equal to, between.
- Uses B\* indexing.

**Special features:**

- UNDO function cancels effects of last operation.
- REVERT TO PREVIOUS VERSION undoes all changes made to the document since it was last saved.
- More than one list can be on the screen at the same time.
- Choose arrow keys or mouse for easy data entry.
- Numeric keypad.
- Built-in file-recovery mechanism to protect data from power fluctuations and media failures.

**Printing:**

- "What you see is exactly what you get" fidelity.
- Apple's high-resolution Dot Matrix Printer (160 x 144 dots per inch; 6.2 x 5.6 dots per mm).
- Apple's Daisy Wheel Printer.
- All or part of a list may be printed.
- Lists may be formatted for 8½ x 11 (215 x 279), 8½ x 14 (215 x 355), or 11 x 14 (279 x 355 mm) inches.
- Print one or multiple copies.
- Print in horizontal or vertical formats.
- A variety of typesets are available including a small, 15-pitch size.

**Documentation:**

- Brief orientation guide to get you started in less than 30 minutes.
- Complete reference book.
- Extensive step-by-step tutorial.
- Handy reference card.

**Apple/U.S.**

Apple Computer, Inc.  
20525 Manami Avenue  
Cupertino, California 95014  
(408) 996-1010  
TLX 171-576

**Apple/U.K.**

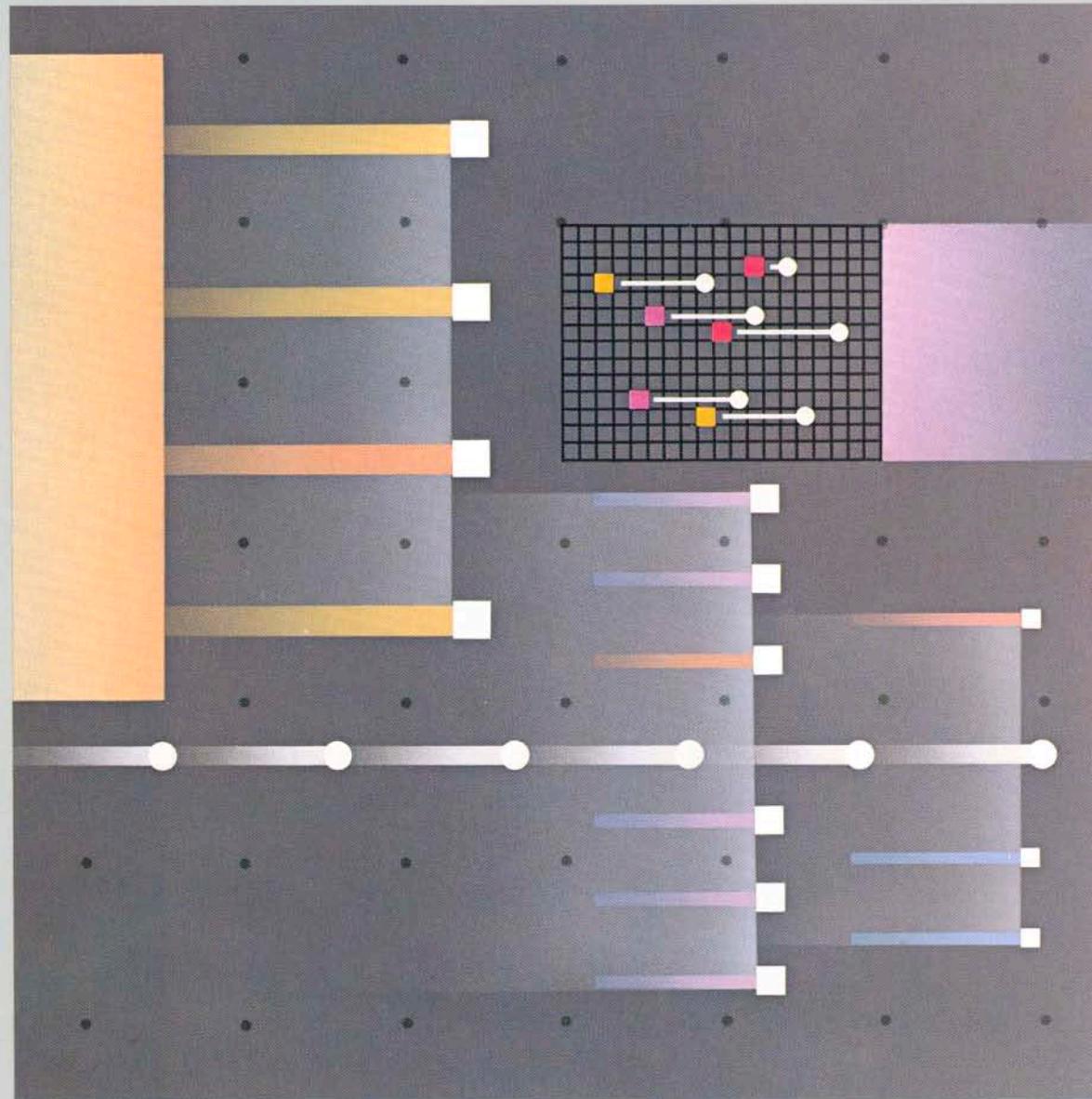
Apple Computer (U.K.) Ltd.  
Eastman Way  
Hemel Hempstead  
Herts HP2 7HQ  
England  
011-44-442-60244  
TLX 851-825834

**Apple/Europe**

Apple Computer International  
5/7 rue de Chartres  
92200 Neuilly-sur-Seine  
France  
011-33-1-624-21-13  
TLX 842-630296

**Apple/Canada**

Apple Canada  
875 Don Mills Road  
Don Mills  
Ontario, Canada M3C 1V9  
(416) 444-2531  
800-268-7637  
TLX 06-988561



LisaProject is a visual project-management tool that helps you schedule and track complex projects. By dividing projects into a series of individual tasks, LisaProject helps you see the critical path, interdependencies, and the answers to "What if?" questions. And it's easy, because there's no special command language to learn.

LisaProject lets you plan and track schedules in Schedule, Resource, and Task charts. And you can transfer charts to Lisa-Draw to customize them further.

In less than 30 minutes you'll be doing useful work with Lisa-Project. Lisa's revolutionary Graphics Mouse Technology™

replaces confusing computer commands with simple graphic images. Graphics, together with the mouse, a simple selecting device, let you create, revise, and print documents intuitively. And because basic operations work the same way in all Lisa™ applications, you'll learn other applications in even less time.

**LisaProject helps you plan and track complex projects easily and efficiently. You can graphically display interdependencies among tasks, identify a project's critical path, and use various types of charts to emphasize a particular aspect of a project.**

**Develop task and resource schedules to help you manage your projects better.**

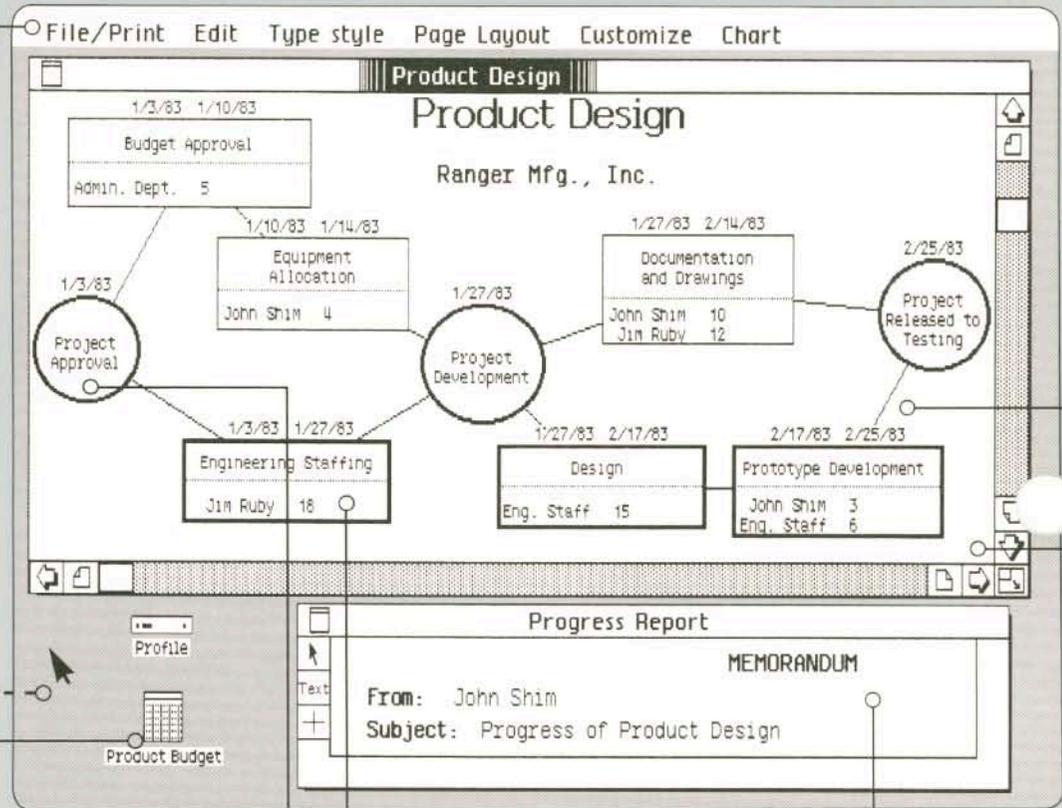
- No prior knowledge of project scheduling is required—select with the mouse, enter tasks and durations, and Lisa does the rest.
- Project and task dates are calculated as new tasks are entered.

**Easily update a project to reflect its current status.**

- Start and finish dates for tasks are entered directly into the Schedule chart.
- Critical path and project schedules are automatically revised to reflect updated start and finish dates.

**Drawing Schedule** charts with Lisa is easier than drawing them on a scratch pad—just use the mouse to create and connect tasks while LisaProject does all the calculations.

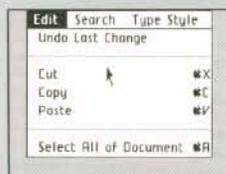
**Menu Bar** All LisaProject functions are selected from the menu bar. To print a document, for example, just move the mouse and select PRINT from the menu. Once printing is under way, you may continue working with Lisa, either in the same document, or in another application.



**Mouse/Pointer** The mouse is a palm-size device that controls Lisa's pointer. It replaces all confusing special function keys and commands. The mouse is connected to Lisa by a thin cable. When you move the mouse, Lisa's pointer matches the movement on the screen.



**Desktop Manager** The Desktop Manager uses graphic symbols such as these to coordinate all the system's operations. For example, to work on a document, simply use the mouse to select an existing document or create a new one. When you're finished, use the mouse to put the document into a folder. The Desktop Manager also enables you to work with more than one document at a time.



**Task Boxes** Tasks are displayed as boxes. They may contain the task ("Design"), resources (people), and the task's duration. When you enter this information, LisaProject automatically calculates task dates.

**Milestones** In LisaProject, milestones are represented by circles, thus differentiating them from tasks, which are always boxes.

**LisaDraw** More than one Lisa document may be on the screen at one time. To move a chart from LisaProject to LisaDraw, for example, simply use the mouse to select COPY from the EDIT menu. When you're ready to transfer the information into another document, select PASTE and your data is moved—you don't even have to touch the keyboard.

**Scrolling** To view another part of your LisaProject document, use the mouse to select the arrows or pages in the corners of the document. Similarly, to stretch or contract the document, use the mouse to move the box at the bottom right-hand corner.

**Task Dependency Lines** After you create task boxes, use the mouse to draw lines showing interdependencies among tasks. Drawing a line from one box to another illustrates that the first task must be completed before the second may begin.

### Present information graphically for better understanding of projects.

- Critical path is highlighted to identify critical tasks and resources.
- Interdependencies are shown as lines between tasks.
- Resource charts illustrate resource utilization.

### Test different project scheduling scenarios quickly and easily.

- Altering the Schedule chart is elementary—just select with the mouse to create and move tasks, or type new information.
- All information in the chart may be changed at any time—task names, dependencies, durations, and resource requirements.

### Choose the type of project status chart that best fits your needs.

- Switch between Schedule, Resource, and Task charts instantly—use the mouse to select the chart you want from the menu.

### Include LisaProject charts in your reports or presentations.

- What you see on the screen is exactly what you get on the printed page.
- Create presentation-quality charts with the revolutionary print quality of Apple's high-resolution Dot Matrix and Daisy Wheel Printers.
- Print in a variety of typesizes, including typeset-quality, presentation sizes.



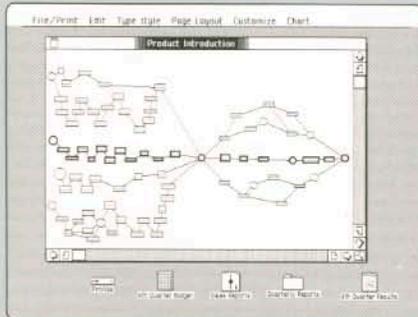
*Resource charts illustrate resource management and utilization over time. Switching to a Resource chart from a Schedule chart makes it easy to visualize project status, resource allocation, and slack time among resources.*



*Task charts list the tasks in the order in which they will be performed, making it easy for you to see the progress of a project and the important dates associated with each individual task.*

### Create Comprehensive Schedules

- No special commands are required—just enter tasks and dates on the screen and LisaProject does the rest.
- Four task dates—early start, early finish, late start, and late finish—may also be displayed.
- As tasks are entered, task and project dates are calculated automatically.
- The project's critical path is highlighted.
- Scarce resources, such as a particular person, are always indicated.
- New tasks and milestones may be added at any time, anywhere in the Schedule chart.



*Get an overview of complex projects by shrinking your chart. Schedule charts allow you to map out entire projects so they're easy to follow and manage. LisaProject shows the critical path, interdependencies among tasks, and the allocation of scarce resources that are associated with even the most complex schedules and timetables.*

### Alter Charts to Reflect a Project's Current Status

- Known start and finish dates for individual tasks may be entered directly into the Schedule chart.
- Task durations and resource requirements may be revised as needed.
- The project schedule and critical path are recalculated when new start and finish dates are entered or task durations change.
- New tasks, milestones, and resources may be entered as needed.

### Graphic Charts Make Project Management Easy

- Critical tasks and resources are indicated with the critical path.
- Interdependencies among tasks are illustrated as lines between tasks.
- Project milestones are represented by circles on the chart to distinguish them from tasks.
- Charts can be moved into LisaDraw for further customization.

### Test Various Scenarios

- Modifying charts is elementary—just use the mouse to draw tasks, move tasks, or enter new information.
- LisaProject information may be altered at any time; this includes task names, durations, and dependencies, as well as resource requirements and allocations.
- Project task dates and the critical path are updated as new information is entered.

### Use Schedule, Resource, and Task Charts

- Switch between Schedule, Resource, and Task charts instantly.
- Schedule charts enable you to see the critical path, the complexity and scope of the project, interdependencies among tasks, task durations, resource allocations, and the overall project schedule.
- Resource charts show resource utilization over time.
- Task charts display project tasks in the order in which they will be performed.

### Include LisaProject Charts in Reports or Presentations

- Unparalleled printing quality from Apple's high-resolution, Dot Matrix and Daisy Wheel Printers.
- Create overhead transparencies from printouts.
- Choose from a variety of typesizes, including large sizes for presentations.



### Basic learning time:

- Less than 30 minutes.

### Maximum drawing size:

- 32 square feet (2.9 square meters) (approximately 60 pages).

### Date/calendar options:

- Display each task with early start, early finish, late start, and late finish dates.
- Specify up to 20 vacation days.
- Specify one to seven days to constitute a work week.
- Specify dates as month/day/year.

### Editing:

- Editing is done the same way as in other Lisa applications.
- Copy, move, or delete any task, milestone, or line.
- Proportionally shrink or expand task boxes.
- Cut and paste, copy, move, replace, and delete.
- Expand or contract charts proportionally.
- Display titles in a variety of typestyles including large presentation sizes.
- Enter titles and subtitles directly on the chart.

### Performance:

- Charts are immediately redrawn when data is entered or changed.
- Instantly see the impact of all functions, editing, and data and text entries.

### Special features:

- Move a LisaProject chart into LisaDraw to customize it further.
- UNDO function cancels effects of last operation.
- View more than one document on the screen at once.
- Scroll either horizontally or vertically.
- REVERT TO PREVIOUS VERSION undoes all changes made to the document since it was last saved.

### Printing:

- "What you see is exactly what you get" fidelity.
- Automatic page breaks.
- Apple's high-resolution Dot Matrix Printer (160 x 144 dots per inch; 6.2 x 5.6 dots per mm).
- Apple's Daisy Wheel Printer.
- Paper can be 8½ x 11 (215 x 279), 8½ x 14 (215 x 355), or 11 x 14 (279 x 355 mm) inches.
- Print one or multiple copies.
- Print whole document or selected pages.
- Print in horizontal or vertical formats.

### Documentation:

- Brief orientation guide, to get you started in 30 minutes.
- Complete reference guide.
- Extensive step-by-step tutorial.
- Handy reference card.

#### Apple/U.S.

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

#### Apple/U.K.

Apple Computer (U.K.) Ltd.  
Eastman Way  
Hemel Hempstead  
Herts HP2 7HQ  
England  
011-44-442-60244  
TLX 651-825834

#### Apple/Europe

Apple Computer International  
5/7 rue de Chartres  
92200 Neuilly-sur-Seine  
France  
011-33-1-624-21-13  
TLX 842-630296

#### Apple/Canada

Apple Canada  
875 Don Mills Road  
Don Mills  
Ontario, Canada M3C 1V9  
(416) 444-2531  
800-268-7637  
TLX 06-986561

Lisa

# LisaTerminal



LisaTerminal allows Lisa to access central mainframes and minicomputers by emulating VT100, VT52, and TTY terminals.

LisaTerminal gives you the best of both worlds: access to the information you need from other computers, plus the convenience and cost effectiveness of

working with the information offline on Lisa. Moreover, data from the host computer can easily be integrated into LisaWrite for additional text processing and formatting.

In less than 30 minutes you'll be doing useful work with LisaTerminal. Lisa's revolutionary graphics and mouse technology

replace confusing computer commands with simple graphic images. Graphics, together with the mouse, a simple selecting device, let you create, revise, and print documents intuitively. And because basic operations work the same way in all Lisa applications, you'll learn other applications in even less time.

**LisaTerminal extends the Lisa concept of integrated software to integrated systems. Never before has it been so easy to exchange information between a personal computer's application programs and a remote computer.**

**Access remote information.**

- Interact with existing data bases and applications.
- Transfer data between a main-frame or mini and Lisa.

**Communicate with a variety of computers.**

- Emulate VT100, VT52, and TTY terminals.
- Asynchronous protocols (full and half duplex) are supported.
- Data is transmitted and received at speeds from 50 to 19200 baud.
- Auto-dial feature automatically calls up the remote computer.

This is a typical **LisaTerminal** screen. You can begin interacting with the remote computer simply by using the mouse to dial the computer's phone number. LisaTerminal will temporarily store everything that comes from the host, so you can review the document and search for important information.

**Menu Bar** All LisaTerminal functions are selected from the menu bar. To set up communications with a remote computer, just move the mouse and choose SET UP from the menu. Then select the options you want and you're ready to work.

**Setup** The SETUP menu lets you preselect the terminal setup options (such as baud rate and terminal selection) and formatting options (such as tab settings and column size).

**Mouse/Pointer** The mouse is a palm-size device that controls Lisa's cursor. It replaces all confusing special function keys and commands. The mouse is connected to Lisa by a thin cable. When you move the mouse, Lisa's pointer matches the movement on the screen.



DATE	BID	ASKED	CLOSE	VOL(100/S)
01/19/83	33 5/8	33 3/4		7574
01/20/83	37 1/8	37 1/4		31600
01/21/83	37 1/4	37 3/8		17973
01/24/83	35	35 1/4		14081
01/25/83	36 5/8	36 3/4		7457
01/26/83	38	38 1/8		9072
01/27/83	40 5/8	40 3/4		14658

**INTER-OFFICE MEMO**

To: Wayne Eilers  
 From: Thomas Jones  
 Subject: AAPL Stock Analysis

Here is the performance of AAPL stock to date:

DATE	BID	ASKED	CLOSE	VOL(100/S)
01/19/83	33 5/8	33 3/4		7574
01/20/83	37 1/8	37 1/4		31600

**Desktop Manager** The Desktop Manager uses graphic symbols such as these to coordinate all the system's operations. For example, to work on a document, simply use the mouse to select an existing document or create a new one. When you're finished, use the mouse to put the document into a folder. The Desktop Manager also enables you to work with more than one document at a time.

**LisaWrite** More than one Lisa document may be on the screen at one time. To move the contents of a LisaTerminal document into a LisaWrite document, for example, simply use the mouse to select COPY from the EDIT menu. When you're ready to transfer the information into another document, select PASTE and your data is transferred—you don't even have to touch the keyboard.

**Scrolling** To view another part of your LisaTerminal document, simply use the mouse to move the arrows or pages in the corners of the document in the direction you want to scroll. Similarly, to stretch or contract the document, use the mouse to move the box at the bottom right-hand corner.

### Use host data in other Lisa programs.

- Transfer text to LisaWrite for inclusion in reports.
- Transfer text from LisaWrite back to the mainframe.
- Store data on a disk for future use.

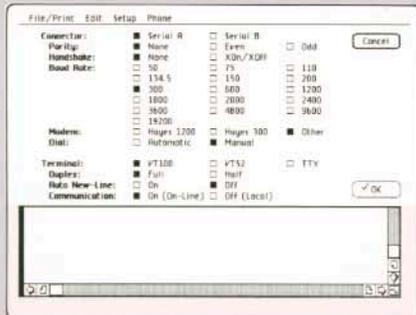
### Set up the terminal options quickly.

- Use the mouse to select terminal setup options from a handy checklist in the menu bar.
- There are no binary screens to decipher—all menus are clear and concise.

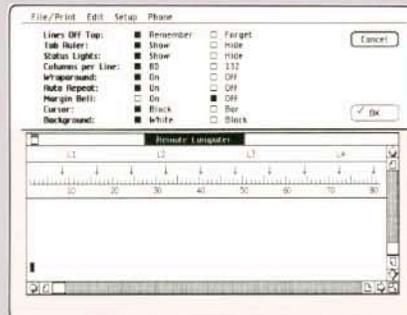
- The setup configuration is automatically stored for future use. You need to set up again only if parameters change.
- Set tabs by pointing to locations on a ruler displayed on the screen.

### Connect with the host computer easily.

- Use the mouse to dial the phone number automatically.
- Create various customized documents for different remote computers.



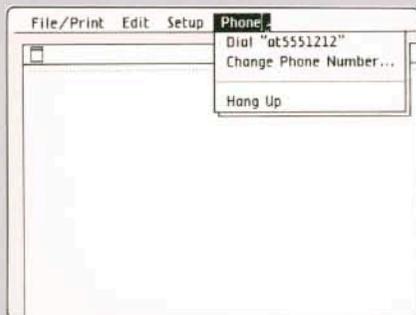
The **SETUP** menu includes such options as baud rate, parity, and mode. Options are selected via the mouse, and are stored automatically for even faster setup the next time you use LisaTerminal.



Using only the mouse, you can format each LisaTerminal document for wraparound, tabs, columns per line, and other convenience features.

### Customize LisaTerminal Characteristics for the Remote Computer

- Choose the appropriate data communication characteristics simply by using the mouse.
- Specify the type of terminal, baud rate, type of transmission, and dialing capabilities for each document.
- LisaTerminal will automatically store the characteristics you've selected.
- To communicate with different computers, simply create a document for each different remote computer. Since each LisaTerminal document may contain the phone number of a remote computer, terminal setup is as easy as selecting DIAL from the PHONE menu.



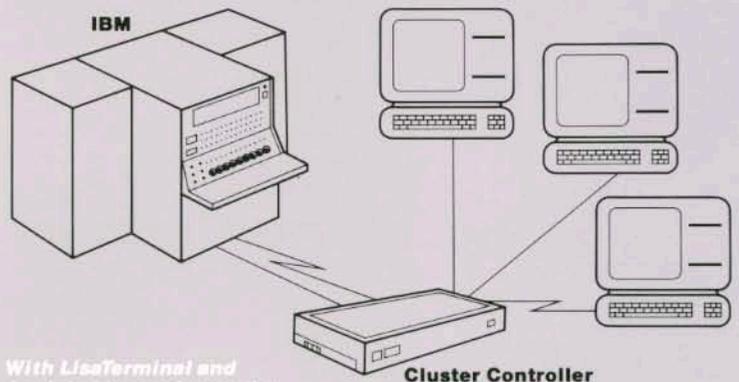
LisaTerminal allows you to store telephone numbers for fast and easy connection to a remote computer.

### Dialing the Remote Computer is Easy

- If you've already specified the phone number of a remote computer and are using our recommended modem, you can dial the computer simply by selecting DIAL from the PHONE menu—you don't have to dial the host for each setup.
- Changing the phone number is easy—just select CHANGE PHONE NUMBER from the PHONE menu, type in the new number, and DIAL again.

### Customize LisaTerminal Documents to Your Liking

- Setting tabs and other screen characteristics is easy—just use the mouse to select the appropriate box.
- LisaTerminal's special REMEMBER feature will record everything you do with your document.



With LisaTerminal and Apple's Cluster Controller Emulator, Lisa can act like an IBM 3270 display station.

### Communicate with IBM Computers

- LisaTerminal and Apple's Cluster Controller Emulator enable Lisa to act like an IBM 3270 display station.
- Copy and paste information between LisaWrite and the remote IBM computer.
- Reduce communication costs by linking many Lisas on the same communication line.



### Basic learning time:

- Less than 30 minutes.

### Special features:

- Status lights can be displayed on the screen.
- VT100 special function keys are available.

### Set-up options:

- VT100, VT52, and TTY mode.
- Baud rate of 50, 75, 110, 134.5, 150, 200, 300, 600, 1200, 1800, 2400, 3600, 4800, 9600, or 19200. Transmit rate and receive rate set separately.
- Even, odd, or no parity checking.
- Full-duplex or half-duplex transmission mode.
- XON/XOFF.
- 80 or 132 columns.
- Manual or automatic dialing.
- Status lights on/off.
- White or black background.
- Block or bar-shape cursor.
- Auto-repeat on/off.
- Auto-new line on/off.
- Wraparound on/off.
- Answer-back message on/off.
- Margin bell.
- On-line/local.
- Serial Port A or B.

### Terminal control:

- Upper-case and lower-case characters.
- Function keys (such as RETURN, TAB, ESC).
- Cursor control codes (such as NUL, ENQ, FF, DEL).
- VT52 auxiliary keypad codes.
- Special graphic character codes.

### Escape sequences:

- All VT52 control sequences.
- Cursor position/position report.
- Cursor backward/forward/up/down.
- Device attributes.
- Erase in display/erase in line.
- Horizontal tabulation set/clear.
- Horizontal and vertical position.
- Index/reverse index.
- Line feed/new line mode.
- Next line.
- Reset to initial state.
- Set/reset mode.

#### Apple/U.S.

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

#### Apple/U.K.

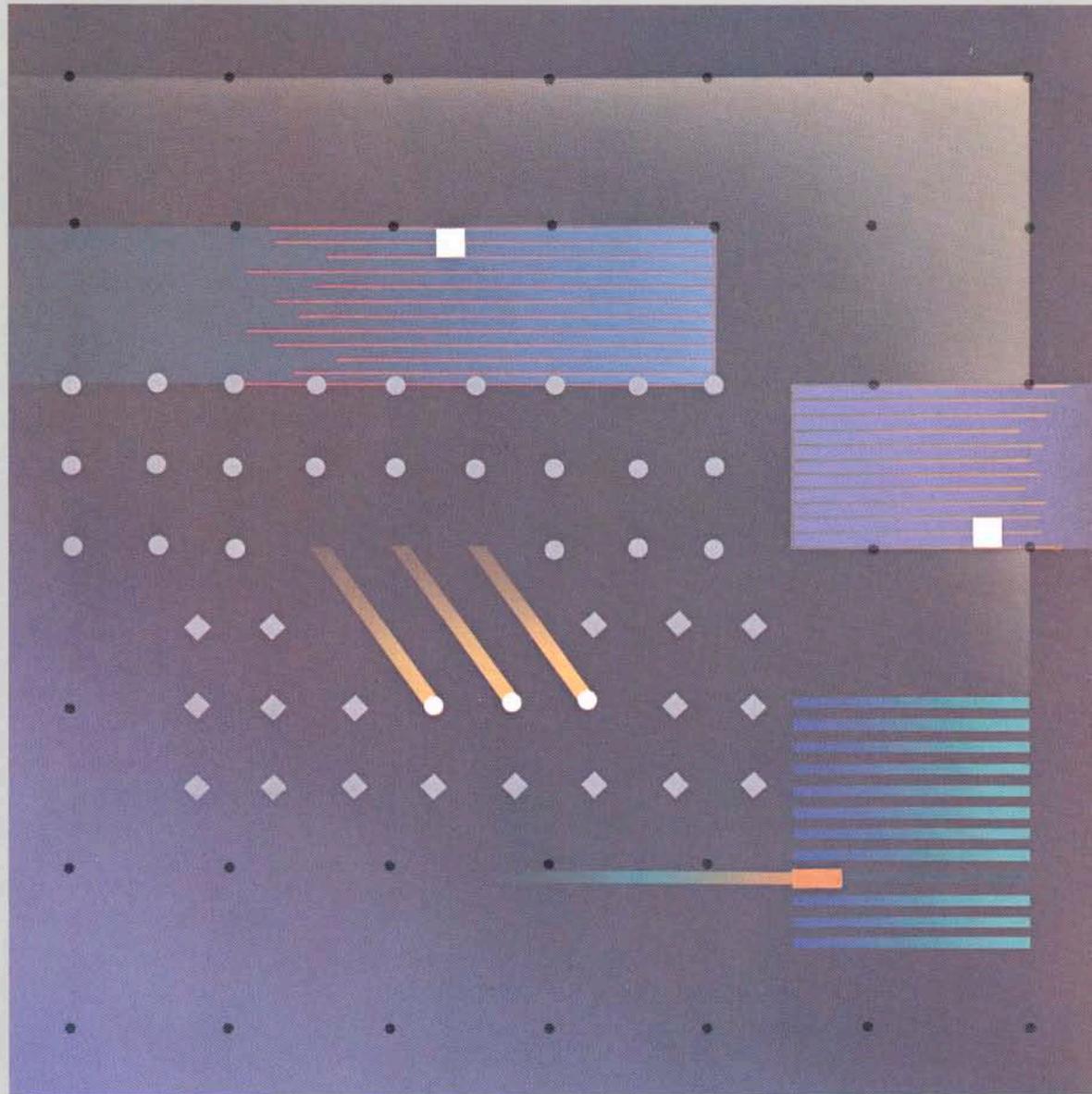
Apple Computer (U.K.) Ltd.  
Eastman Way  
Hemel Hempstead  
Herts HP2 7HQ  
England  
011-44-442-60244  
TLX 851-825834

#### Apple/Europe

Apple Computer International  
5/7 rue de Chartres  
92200 Neuilly-sur-Seine  
France  
011-33-1-624-21-13  
TLX 842-630296

#### Apple/Canada

Apple Canada  
875 Don Mills Road  
Don Mills  
Ontario, Canada M3C 1V9  
(416) 444-2531  
800-268-7637  
TLX 06-986561



LisaWrite is one of the most advanced word processors available for personal computers. With no complex commands to learn, you can easily create, revise, and print documents of any size.

Because LisaWrite lets you integrate LisaCalc models, LisaTerminal information, or other

LisaWrite documents into your written document, you can compose reports and proposals quickly and efficiently.

In less than 30 minutes you'll be doing useful work with LisaWrite. Lisa's revolutionary Graphics Mouse Technology™

replaces confusing computer commands with simple graphic images. Graphics, together with the mouse, a simple selecting device, let you create, revise, and print documents intuitively. And because basic operations work the same way in all Lisa™ applications, you'll learn other applications in even less time.

**LisaWrite combines advanced word processing technology with the power and flexibility of Lisa to help you prepare documents more quickly, more efficiently, and more easily. The result: better communication — both with your clients and within your organization.**

**Just about any format and length you need.**

- Produce a professional-looking document in almost no time at all. Use the mouse to create a blank document, then begin typing.
- Create formatted stationery customized to your needs — one for each type of document you write (such as memos, form letters, and reports).

- Produce documents up to hundreds of pages long (depending on your disk storage capacity).

**Faster editing, fewer revisions — on other people's documents or your own.**

- Powerful editing functions like cut, paste, and copy can be used on anything from a single character to an entire document.
- Revising documents is easy, even if you don't use LisaWrite

The six **LisaWrite** menu functions appear across the top of the screen, above the name of the file you're editing. The text appears below—in exactly the same form that it will appear on paper.

**Menu Bar** All LisaWrite functions are selected from the menu bar. To print a document, for example, just move the mouse and select PRINT from the menu. Once printing is under way, you may continue working with Lisa, either in the same document, or in another application.

The screenshot shows a window titled "Sales Report" with a menu bar containing: File/Print, Edit, Search, Type Style, Format, Page Layout. The main content area displays a memorandum:

**MEMORANDUM**  
 TO: Regional Sales Managers  
 RE: 1982 Sales Results

Excellent year! Worldwide sales were 9% above quota -- and it was a very aggressive quota at that! As the figures below indicate, our late spring campaign was a tremendous success, primarily due to your extraordinary coordination efforts. **Keep up the good work!**

	Q1	Q2	Q3	Q4	Year
East	\$ 2,460	\$ 2,497	\$ 2,534	\$ 2,572	\$ 10,064
South	820	832	845	857	3,355
Central	1,918	1,947	1,976	2,006	7,846
West	3,140	3,187	3,235	3,283	12,845
<b>U.S. Total</b>	<b>\$ 8,338</b>	<b>\$ 8,463</b>	<b>\$ 8,590</b>	<b>\$ 8,719</b>	<b>\$ 34,110</b>

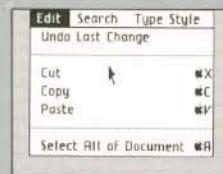
Below the memorandum is a smaller window showing a spreadsheet version of the same data. A mouse cursor is pointing at the "Quarterly Reports" icon in the Desktop Manager.

**Mouse/Pointer** The mouse is a palm-size device that controls Lisa's pointer. It replaces all confusing special function keys and commands. The mouse is connected to Lisa by a thin cable. When you move the mouse, Lisa's pointer matches the movement on the screen.



**Desktop Manager** The Desktop Manager uses graphic symbols such as these to coordinate all the system's operations. For example, to work on a document, simply use the mouse to select an existing document or create a new one. When you're finished, use the mouse to put the document into a folder. The Desktop Manager also enables you to work with more than one document at a time.

**LisaCalc** More than one Lisa document may be on the screen at one time. To move information from LisaCalc (or LisaTerminal) to LisaWrite, for example, simply use the mouse to select COPY from the EDIT menu. When you're ready to transfer the information into another document, select PASTE and your data is transferred—you don't even have to touch the keyboard.



**Scrolling** To view another part of your LisaWrite document, simply use the mouse to select the arrows or pages in the corners of the document. Similarly, to stretch or contract the document, use the mouse to move the box at the bottom right-hand corner.

**Typestyle Menu** This menu offers you a variety of typestyles, including proportional spacing. Each is available in bold, italic, underlined, and any combination thereof.

often, because entering, selecting, and editing text works the same way as in other Lisa applications.

Repetitive changes are simple and fast, thanks to LisaWrite's global search and replace capability.

### Documents that look totally professional.

- A variety of typestyles provides the ultimate in flexibility and quality.

- Lines can be justified (left, right, or both margins) or centered.

### LisaCalc analyses can be included for more complete reports.

- Move a LisaCalc table into a LisaWrite document without ever touching the keyboard.
- Edit and format the LisaCalc table just as you would any other part of the document, and enhance it with LisaWrite typestyles.

### Tables are easier to create and edit on Lisa than on a typewriter or other word processor.

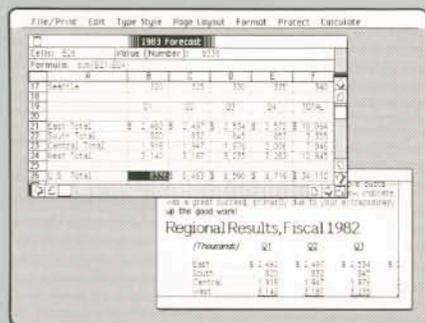
- Choose from four different types of tab stops: normal, centered, decimal, and flush right.
- Move a tab stop by "pulling" it to the new location with the mouse.

### One printout is all you need.

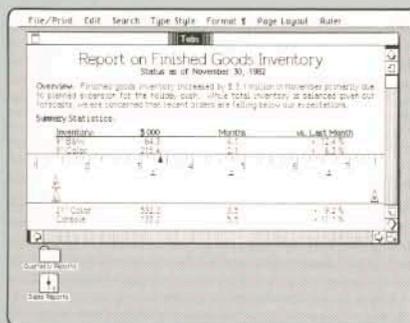
- What you see on the screen—including typestyles—is what

you get on paper, so you know how your final document will look before you print it.

- Apple's high-resolution Dot Matrix and Daisy Wheel Printers both produce quality text suitable for reports and presentations.



Because LisaCalc tables can be made part of word processing documents, you can reformat them using all of LisaWrite's features.



With the horizontal ruler, you just point to where you want your tabs and margins, and they're automatically inserted.

### Customize LisaCalc Tables for Inclusion in Reports

- Use the horizontal ruler to adjust the placement of columns and to reset the margins. (You can have rulers marked in inches or centimeters.)

Bold, italic, and underlined text can be used to emphasize important data.

### For the Typeset look...

LisaWrite gives you a variety of typestyles to add emphasis to your reports, memos, and other documents. It supports proportional spaced styles for a more professional appearance. Large type styles (1/4 inch and 1/3 inch tall) are useful for section headings and presentation slides. A small 15 pitch size can be used to fit 132 columns of information on a regular sized piece of paper. Bold, italics, and underlining add emphasis as required.

Sizes	Faces	Styles
small (15 pitch)	Gothic	Regular
medium (10 and 12 pitch)	Courier	Bold
proportional spaced	Elite	<i>italic</i>
large (1/4" tall)	Modern	Underline
larger (1/3" tall)	Classic	Subscript <sub>1</sub>
		Superscript <sup>2</sup>

LisaWrite gives you the typestyle options you need to make communications clear and dramatic.

### Many Different Typestyles to Choose From

- A variety of typestyles is available, including large presentation-style sizes and proportionally spaced styles.
- Each typestyle can also be made bold, italic, underlined, or a combination of one or more of these choices. (Bold, italic, and underlined styles are useful for emphasizing various parts of your document.)
- Subscripts and superscripts are easily included.

### More Versatile and Powerful Than a Typewriter

- To set line spacing, just select from the appropriate menu. You can choose single, line and a half, double, or triple spacing.
- Because it's so easy to change the line spacing, you can experiment with your text until you get the look you want. You can also squeeze it—or expand it—to fit on a given number of pages.
- The spacing between paragraphs can be set independently of the spacing between lines.
- Headers and footers—with or without page numbers—are easy to specify. Once you request them, they're automatically inserted on every page.

### Tabs and Margins Are Easy to Set

- To set margins and tabs, select the horizontal ruler, then use the mouse to insert them where you want them. There's no guessing, or counting.
- There's also a vertical ruler for precise positioning of headers, footers, and titles, and for adjusting the top and bottom margins.



Once your document looks the way you want it on the screen, simply select the PRINT function to get an identical version on paper.

### What You See is What You Get

- Margins, line justification, line spacing, line breaks, page breaks, page numbers, headers, footers, bold, italic, and underlined text all appear on the screen just as they do on paper.

### Justify Text Any Way You Want

- You can justify margins (left, right, or left and right) or center lines.
- You can justify different justifications and centering with the same piece of text to see how it looks best. Just select what you want and LisaWrite automatically centers or rejustifies the text for you.

**MEMORANDUM**

TO: Regional Sales Managers  
 FROM: Dale Clark  
 RE: 1982 Sales Results

Excellent year! Domestic sales were 9% above quota—and it was a very aggressive quota at that. As the figures below indicate, our late spring campaign was a great success, primarily due to your extraordinary coordination efforts. Keep up the good work!

(Thousands)	Q1	Q2	Q3	Q4	Year
East	\$ 2,480	\$ 2,497	\$ 2,554	\$ 2,572	\$ 10,103
South	828	832	865	857	3,382
Central	1,518	1,947	1,775	2,006	7,246
West	2,160	2,187	2,225	2,283	8,855
<b>U.S. Total</b>	<b>\$ 6,986</b>	<b>\$ 6,463</b>	<b>\$ 6,590</b>	<b>\$ 6,719</b>	<b>\$ 24,118</b>

The East region again continued its winning ways posting record high results for the 2nd quarter, up 125% over 1981. The newly re-organized Central region came in at 17% over quota. The West and South were 9% and 7% above quota respectively.

More details are attached in the complete report. But, once again, a job well done!

**Basic learning time:**

- Less than 30 minutes.

**Maximum document size:**

- Dependent upon available disk space.
- Maximum width of text is 14 inches (355 mm).

**Text viewing area:**

- Dependent on typestyle chosen (e.g., 31 lines by 86 characters with 15-pitch style).

**Editing:**

- To insert text just select with the mouse and type.
- Edit any length text:
  - single characters, words, or paragraphs.
  - multiple characters, words, or paragraphs.
  - entire documents.
- Cut and paste.
- Copy, move, delete.
- Search and replace
  - global and selective.
  - “wildcards” can be used.
- Editing is done the same way as in other Lisa applications.

**Formatting:**

- All formatting appears on display screen exactly as it will appear on paper.
- Margin justification: left, right, left and right.
- Automatic centering.
- A variety of typestyles, including:
  - proportionally spaced.
  - two large presentation sizes.
  - bold, italic, and underlined, in any combination.
  - all styles available in subscripts and superscripts.
- Line spacing:
  - single, line and a half, double, or triple.
  - spacing between paragraphs can be varied independently.
- Tabs:
  - flush left, flush right, centered, decimal.
- Tab fill patterns: periods, dashes, underlines.
- Headers and footers:
  - can be multiple lines long.
  - can be placed anywhere on the page.
  - can include automatic page number.
- First-line margin for outdenting and indenting paragraphs.
- Page breaks: automatic or manual.
- “Conditional page” feature protects block of text or table from being broken across pages.

**Special features:**

- Move LisaCalc model into LisaWrite in three easy steps.
- UNDO function cancels effects of last operation.
- REVERT TO PREVIOUS VERSION undoes all changes made to the document since it was last saved.
- PREVIEW function:
  - quickly paginates document.
  - shows page breaks, page numbers, headers, and footers in place.
- Split-screen feature:
  - lets you split screen vertically or horizontally to let you see different parts of documents or cut and paste between documents.
  - view more than one document on the screen at once.
- Scrolling:
  - next line.
  - next screenful.
  - go directly to any part of document.

**Printing:**

- “What you see is exactly what you get” fidelity.
- Apple's high-resolution Dot Matrix Printer (160 x 144 dots per inch; 6.2 x 5.6 dots per mm).
- Apple's Daisy Wheel Printer.
- Paper can be:
  - 8½ x 11 (215 x 279), 8½ x 14 (215 x 355), or 11 x 14 (279 x 355 mm) inches.
- Print one or multiple copies.
- Print whole document or selected pages.
- Print in horizontal or vertical formats.
- Background printing enables you to print one document while working on another.

**Documentation:**

- Brief orientation guide to get you started in 30 minutes.
- Complete reference guide.
- Extensive step-by-step tutorial.
- Handy reference card.

**Apple/U.S.**

Apple Computer, Inc.  
20525 Mariani Avenue  
Cupertino, California 95014  
(408) 996-1010  
TLX 171-576\*

**Apple/U.K.**

Apple Computer (U.K.) Ltd  
Eastman Way  
Hemel Hempstead  
Herts HP2 7HQ  
England  
011-44-442-60244  
TLX 851-825834

**Apple/Europe**

Apple Computer International  
57 rue de Chartres  
92200 Neuilly-sur-Seine  
France  
011-33-1-624-21-13  
TLX 842-630296\*

**Apple/Canada**

Apple Canada  
875 Don Mills Road  
Don Mills  
Ontario, Canada M3C 1V9  
(416) 444-2531  
800-268-7637  
TLX 06-986561

Lisa

## System Hardware



Lisa's hardware components combine to form an extremely sophisticated and powerful personal computer for the office.

At the heart of the system is the 32/16-bit MC68000 microprocessor, the most highly praised chip of recent years. One megabyte of memory is standard. Two disk drives are integral and provide 1.7 megabytes of formatted storage capacity. And a

bit-mapped screen with more than a quarter million dots makes possible detailed graphics and a variety of typestyles.

Lisa's revolutionary technology uses graphic images rather than confusing computer commands to represent powerful computer functions such as editing and starting a new document. These

graphics, together with the mouse, a simple selecting device, let users interact intuitively with the system.

As an integrated personal office system, Lisa™ easily accommodates a host of peripheral devices such as printers, modems, and hard disk drives. Lisa can also be configured in a network and as a terminal for your mainframe or minicomputer.

**Lisa is the most advanced personal computer available for the office. You don't have to choose between ease of use, simplicity of design, tested reliability, and powerful features and capabilities — Lisa lets you have them all.**

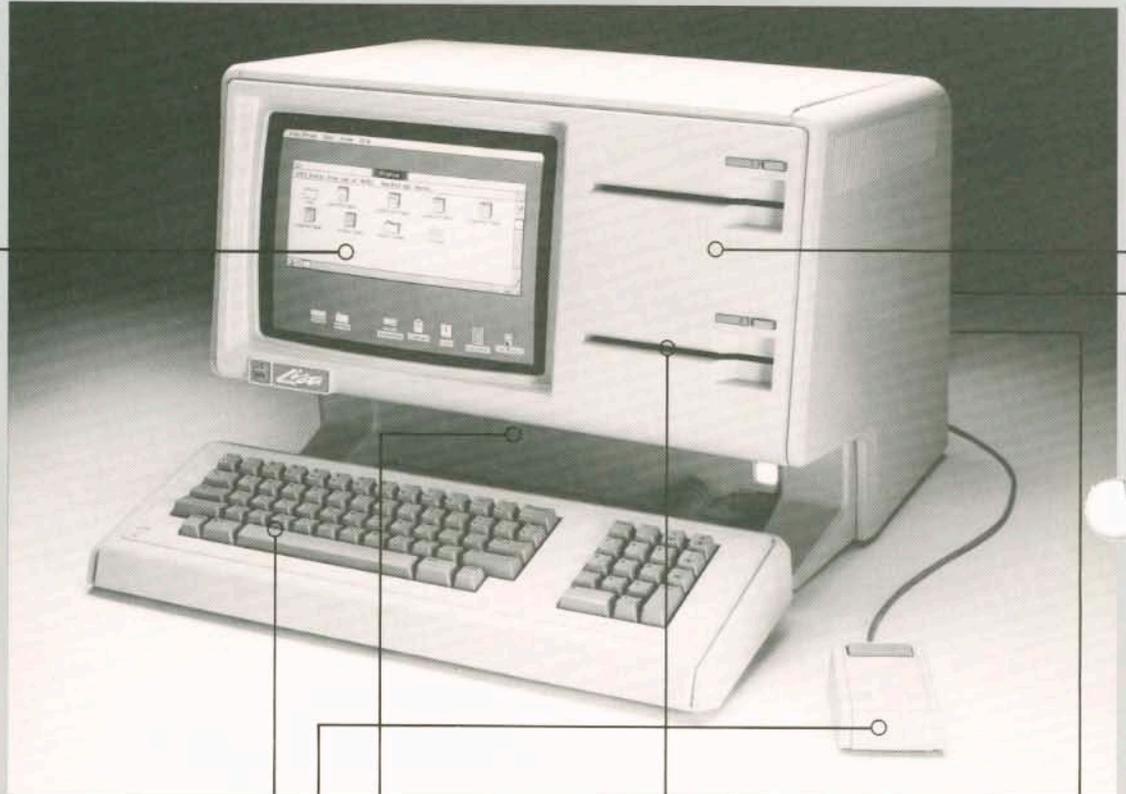
**Lisa is adaptable to many different conditions.**

- Lisa's attractive styling and compact, low-profile, integrated design make it a natural for any office environment.
- The system console houses a 12-inch display, two disk drives, and the system electronics. The keyboard and mouse are separate.
- Lisa is silent in operation, thanks to convection cooling.

**A high-resolution screen complements Lisa's revolutionary Graphics Mouse Technology.**

- The bit-mapped display produces 364 lines of 720 dots each (more than a quarter of a million dots total) for crystal clear images.
- Lisa produces multiple type-styles—including large, presentation-size styles, proportional spacing, and bold, italic, underlined, and shadow printing.

**As attractive** as it is functional, the Lisa system is well designed in every sense of the word.



**Bit-Mapped Display** The bit-mapped display screen provides crisp, clear images of text and graphics. Its high-resolution, low-glare design features high-efficiency phosphor and black-on-white display to reduce eye fatigue.

**Keyboard** The separate keyboard can be used on the tabletop or in your lap. Its lightweight, sturdy design features a standard typewriter layout, with 10-key pad and N-key rollover for the speed fast typists need.

**Mouse/Pointer** The mouse enables users to take advantage of the naturally harmonious relationship between hand and eyes. Even the most complex functions are as easy as "point and select."

**Disk Drives** Standard are two built-in, high-density, 5¼-inch floppy disk drives providing 1.7 megabytes of formatted capacity. Hard-disk drives can also be added.

**Microprocessor** Lisa is built around the extremely fast, powerful MC68000—a 32-bit microprocessor with a 16-bit external data path. It addresses one megabyte of main memory. Lisa is also equipped with a real-time clock (backed up by a battery), allowing you to set the time, day, and date. Lisa will then time-stamp all documents you create or update.

**Built-In Ports** Lisa has two built-in RS-232 serial ports and one parallel interface port for connecting printers, modems, hard disk drives, and other peripheral devices.

**Expansion Slots** Three expansion slots enable you to plug in parallel and other I/O boards to expand the capabilities of your Lisa system. The "mistake-proof" installation design virtually eliminates the chance of damaging boards or connecting them incorrectly.

**Modular Components** Most components are modular—including the disk drives and power supply—and are easily removed for servicing or swapping.

- Graphics are completely integrated. Special symbols and common shapes are also available.

**Massive disk storage capacity with built-in file protection.**

- Two high density, 5¼-inch mini-floppy disk drives are standard. Each disk holds up to 860,000 characters (formatted capacity).

- Software controls the loading and release of diskettes.
- Lisa supports the use of the Apple ProFile™ hard-disk drive.

**Lisa can grow as your system needs evolve and grow.**

- Two RS-232 ports are located on the rear panel, one with full modem capability.
- A parallel port is also provided, for connecting a ProFile hard disk or Apple's high-resolution Dot Matrix Printer.

- Three expansion slots are provided for special-purpose cards.
- AppleNet, Apple's local area network, will enable you to connect Lisas, as well as Apple IIs and IIIs.

**Reliable hardware that's easy to service.**

- Diagnostics are built in.

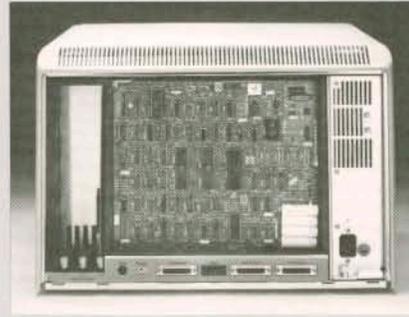
- All the internal components are modular (except for high-voltage video modules), so they can be removed easily for servicing.
- Floppy disks are active only when accessed.



*The resolution and detail of the Lisa screen give you the precision you need for even the most demanding applications.*

**A Screen You Don't Get Tired of Looking At**

- Lisa's bit-mapped screen has 364 lines of 720 dots each—more than a quarter million dots in all.
- High-resolution screen output produces crisp graphics and text in eleven different type sizes and styles. Each typestyle, including bold, italic, shadow, and underline, has been customized to be easily read.
- Black-on-white image with software-controlled contrast is extremely easy on the eyes.
- The screen's high-efficiency phosphor, and the automatic dimming or blanking of the screen when Lisa remains untouched for a user-specified period of time, prolong screen life and prevent ghosting that comes from screen burning.



*Lisa provides all the I/O power and flexibility you're ever likely to need.*



*Lisa is the most advanced personal office system available; you can connect printers, modems, and hard disks, link more than one Lisa together in a network, and access mini- and mainframe computers to configure the system that best serves your needs.*



*Lisa's entirely modular design makes it easy to swap modules.*

**No More Waiting for Service**

- Lisa is built to be reliable, so your service needs will be few and far between.
- If you do need service, you can easily remove most components yourself and swap modules.
- Lisa incorporates several internal hardware protection mechanisms, such as offset card connectors, card-lift tabs, and interlocks that automatically turn off the power and drain residual voltage when the front bezel or rear panel are removed. (The high-voltage CRT video board circuitry are inaccessible except to trained service personnel.)
- Built-in diagnostics test system integrity.

**Lisa As An Integrated System**

- All input/output functions are handled by three microprocessors and a versatile interface controller operating on a shared bus.
- Two serial ports are built in—one of which has full modem capability, including the support of auto-dial and auto-answer modems.
- A parallel port is provided to interface directly with either a hard disk or a dot-matrix printer.
- Included is a jack for composite video for external high-resolution monitor displays.
- Configure your Lisa to be used as a stand-alone personal office system, within a network of other Lisas, or as a terminal for a mini- or mainframe computer; or combine these capabilities to suit your individual needs.
- Connect more than one printer to Lisa, for example, an Apple Dot Matrix and an Apple Daisy Wheel Printer.

**Human Engineering That's Truly Revolutionary**

- The mouse lets you point to and select the function you want, instead of having to learn complicated commands and type them in.
- Detached keyboard with auto-repeat keys and built-in keypad makes data entry fast.
- Convection cooling system makes Lisa totally silent in operation.
- Lisa's compact design fits comfortably almost anywhere.
- Contrast-enhancement screen provides glare-free viewing.

**Display:**

- 12" inch screen (measured diagonally).
- Full-screen bit-mapped display:
  - 364 lines by 720 dots.
  - up to 45 lines of 144 characters.
- 60 Hz refresh rate.
- 64 levels of contrast under software control.
- Glare-reducing screen (enhances contrast).

**Keyboard:**

- Detached, IBM Selectric type with N-key rollover.
- Sculptured keytops (textured, non-slip, non-glare).
- Numeric keypad with raised dot on 5 key for quick positioning.
- Full ASCII character set with up to 76 keys.
- All keys programmable for special characters or functions.
- Smart interface with control-oriented processor.

**Mouse:**

- Extremely fast, intuitive cursor positioning.
- Works well on any surface.
- Simple one-button design eliminates confusion and the need to learn commands.

**Disk storage:**

- 860K bytes (per drive) formatted storage (1.4 megabytes unformatted).
- 62.5 tracks (10,000 bits) per inch.
- Automatic head loading and disk eject under software control.
- Smart interface with 6504 processor.

**Main processor:**

- MC68000 32/16-bit CPU:
  - 32-bit internal architecture.
  - 16-bit external data path.
  - 7 levels of interrupts.

**Real-time clock:**

- Software on-off control.
- Interval and event timing.

**Main memory:**

- 16K bytes of startup ROM.
- Up to one megabyte of RAM.
- Parity error detection.

**Memory management:**

- Permits operating system to relocate segments in memory.
- Provides access controls for blocks of memory.
- Segmentation into 128 variable-length blocks dynamically controlled by memory map table.

**Communications interface:**

- Two serial ports:
  - Intelligent controller:
    - full-function, programmable (Asynch, bisynch, SDLC, HDLC).
- RS-232C with half- or full-duplex channels.
- Full modem control and ring indicator on one channel.
- Baud rates software-programmable.
- One parallel port:
  - 6522 interface adapter.
  - 8-bit bidirectional with handshake control.

**Audio output:**

- Built-in speaker with software-controllable tone generator.

**Expansion board slots:**

- Three slots.
- Zero-insertion-force connectors.
- Direct connection to system bus.
- DMA capability.
- Memory-mapped I/O.
- Vector interrupt capability.
- Direct connection of power supply:
  - digital ground.
  - +5 V, +12 V, –12 V, –5 V (100 mA max).
  - allows up to 15 W total (maximum rating) for all three cards.
  - +5 V standby (at 50 mA) per board.

**Apple/U.S.**

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

**Apple/U.K.**

Apple Computer (U.K.) Ltd.  
Eastman Way  
Hemel Hempstead  
Herts HP2 7HQ  
England  
011-44-442-60244  
TLX 851-825834

**Apple/Europe**

Apple Computer International  
5/7 rue de Chartres  
92200 Neuilly-sur-Seine  
France  
011-33-1-624-21-13  
TLX 842-630296

**Apple/Canada**

Apple Canada  
875 Don Mills Road  
Don Mills  
Ontario, Canada M3C 1V9  
(416) 444-2531  
800-268-7637  
TLX 06-986561

Lisa

## System Overview



This is Lisa,<sup>™</sup> Apple's revolutionary personal computer for the office. It doesn't work like a conventional computer. It works the way you do.

Lisa replaces conventional computer commands with simple graphic images and a clever pointing device called a mouse. You use them to control the entire system. Use the mouse to

select the pictured operation you want and Lisa responds instantly. You can actually learn to do useful work with the system in less than 30 minutes.

Lisa's simplicity is matched by its power and expandability. With business applications that work together, and the ability to communicate with central com-

puters, you can integrate the information you need in powerful new ways. And by linking Lisas and other Apple products together in an office network, you can share and distribute this information efficiently. Moreover, the availability of powerful programming languages ensures that additional applications are being developed for your specific business needs.

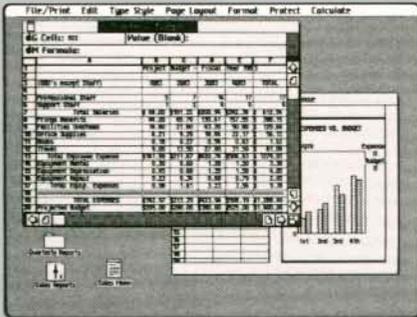
**There's nothing else like Lisa. Its revolutionary software and hardware let you work with different kinds of information simultaneously. No other personal system is as powerful, flexible, and simple to use.**

**Analyze any complex business situation with Lisa's powerful applications.**

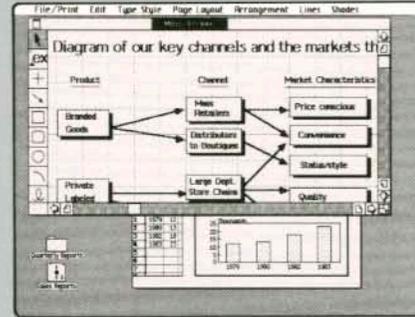
- LisaCalc, LisaList, and LisaProject help you manage complicated business budgets, operations, and projects.
- LisaWrite, LisaGraph, and LisaDraw let you compose and prepare reports, presentations, and business correspondence.
- LisaTerminal and other Lisa data communication products provide access to information in other computers.

**Communicate ideas and decisions more effectively through graphics.**

- Add strong graphic impact to your reports and presentations with graphics from LisaGraph, LisaDraw, and LisaProject.
- Lisa's revolutionary technology allows you to create and revise graphics as easily as you do text.
- Printouts of any Lisa text or graphics are presentation quality.



*"What if?" analyses are easy with all of Lisa's applications. For example, in LisaCalc, enter new information and the model recalculates instantly.*



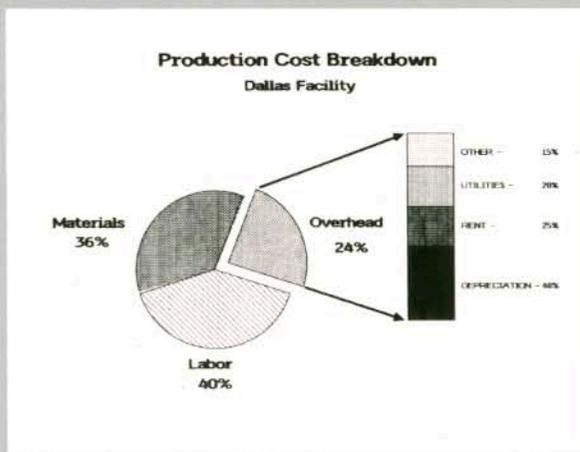
*Lisa's revolutionary graphics and applications, such as LisaDraw, enable you to communicate more effectively and easily.*

**Sophisticated Analysis Tools**

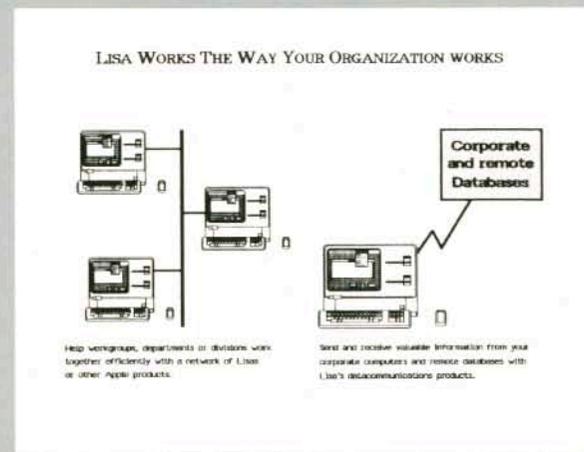
- Examine alternate business and financial scenarios with LisaCalc's "What if?" feature.
- Evaluate various resource and scheduling options with LisaProject.
- Create a data base with LisaList to help organize, update, and refine all kinds of important information.
- Graph even complicated data simply with LisaGraph. Get a clear perspective on important business information.
- Transfer data between applications for added impact (for example, move LisaCalc data into LisaGraph for plotting).

**Sophisticated Communication Tools**

- LisaDraw makes it easy to create charts, diagrams, and drawings for presentations or reports without the aid of a graphic designer.
- LisaGraph's bar, line, pie, and scatter graphs help illustrate important information.
- A visual Schedule or Resource chart from LisaProject will help you monitor the progress and critical path of any project.
- Lisa's revolutionary Graphics Mouse Technology lets you create, store, and revise graphs, charts, and illustrations as easily as text.
- Advanced printing technology lets you create high-resolution graphics and text in presentation quality printouts.
- Transfer data between applications to emphasize your point of view (for example, move a LisaCalc table into a LisaWrite report).



*Lisa's integration allows you to customize LisaGraph charts in LisaDraw for more effective presentations.*



*Advanced communication tools help to integrate Lisa into your organization. With LisaTerminal, for example, you can easily send and receive information from remote data bases.*

**Learn Lisa applications faster and more easily with Lisa's revolutionary technology.**

- Lisa replaces confusing computer commands with pictures and symbols that let you work interactively with all Lisa applications.
- The mouse controls Lisa's pointer. Move the mouse to control Lisa's basic functions, such as printing and saving documents.
- All appropriate functions are available in a convenient menu

bar at the top of the screen.

- All Lisa applications share such functions as editing, printing, and filing. Once you've learned these for one application, you've learned them for all applications.

**Make better business decisions, more easily with Lisa's integrated design.**

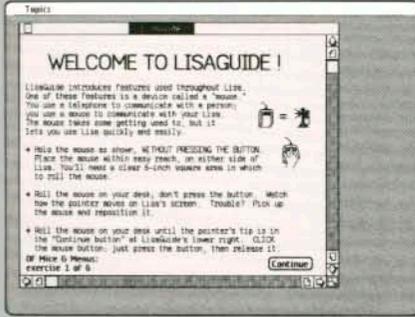
- Multiple documents may be on the screen simultaneously.

- Lisa's six basic applications (and LisaTerminal) can share data. Move LisaCalc information into LisaWrite or LisaGraph; move LisaGraph or LisaProject charts into LisaDraw.
- All Lisa applications are structured in the same way; you can start doing useful work in one in less than 30 minutes; you'll learn successive applications in significantly less time.
- Lisa's communication products will enable you to integrate your

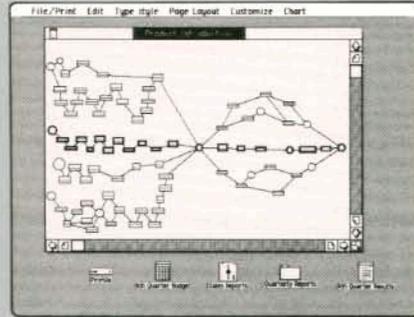
entire office by accessing mainframes or minicomputers and by creating a local area network.

**Tackle even large business problems easily.**

- Lisa's huge one-megabyte memory capacity gives you the ability to analyze massive amounts of information.
- ProFile,™ Apple's five-megabyte hard disk, and two high-density,



*You can be doing useful work with any Lisa application in less than 30 minutes. LisaGuide, an interactive tutorial, helps you get started quickly.*



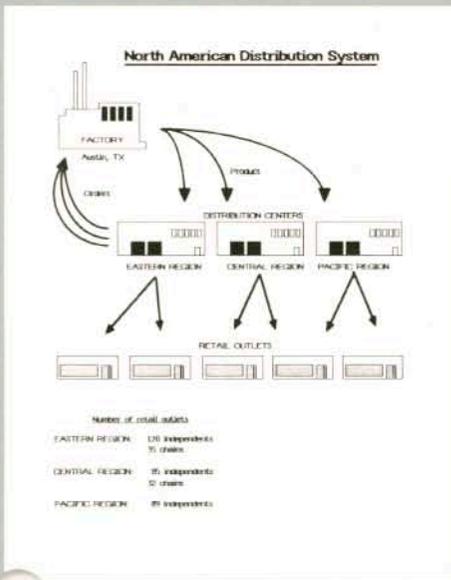
*Lisa's large memory capacity lets you tackle virtually any business problem; monitor complex schedules with up to 1,000 tasks in LisaProject.*

**Learning Lisa Applications**

- You can start doing useful work in any Lisa application in 30 minutes or less.
- All applications are structured the same way. Once you learn how common functions, such as printing, editing, and filing, work for one application, you know how they work for all applications.
- All functions are always accessible through the menu bar, but they're never in the way.
- The special UNDO function encourages experimentation during learning.

**The Capacity to Solve Your Business Problems Today and Tomorrow**

- LisaCalc models can be as large as 255 rows x 255 columns (approximately four times larger than most personal computers).
- LisaProject charts will accommodate projects with up to 1,000 tasks (and print charts as large as 32 sq.ft.; 2.9 sq.m.).
- The LisaList data base can contain over 6,000 records (of 100 characters each).



*Lisa's revolutionary graphics capability helps you represent complex business situations clearly.*

**Employee List**

Last Name	First Name	Address	City	St.	Postal Code	Telephone	Social Security #	Department	Position	Salary
Marano	Thomas	25 Peter Crochran Lane	Chicago	IL	60615	(312) 812-4515	985-88-4218	Marketing	TE	\$27,500.00
Marano	Michael	125 Jones Lane	Chicago	IL	60612	(312) 812-4515	480-71-2121	Marketing	TE	\$27,500.00
Marano	Paula	8473 Lake Street	Marysville	OR	97054	(425) 538-9880	127-98-9874	Marketing	TE	\$24,000.00
Marano	Frank	25400 Gordon Lane	Albany	NY	12215	(518) 486-9000	880-12-6140	Marketing	TE	\$18,000.00
Marano	Jennifer	1400 Orange Street	Augustine	NC	28502	(919) 674-4515	707-74-9475	Marketing	TE	\$12,000.00
Marano	Crystal	2345 Pine Street	Houston	TX	77001	(713) 812-4515	981-98-4444	Marketing	TE	\$12,000.00
Marano	John	999 St. James Place	Houston	TX	77001	(713) 812-4515	880-12-6140	Marketing	TE	\$12,000.00
Marano	Steve	4533 Oak Plaza	Houston	TX	77001	(713) 812-4515	981-98-4444	Marketing	TE	\$12,000.00
Marano	Randy	1245 Sacramento Street	Augustine	NC	28502	(919) 674-4515	981-98-4444	Marketing	TE	\$12,000.00
Marano	William	999 Victoria Place	Houston	TX	77001	(713) 812-4515	981-98-4444	Marketing	TE	\$12,000.00
Marano	Julie	1 Harbinger Street	Hagerstown	VA	22640	(703) 544-4515	981-98-4444	Marketing	TE	\$12,000.00
Marano	Steve	999 St. James Place	Houston	TX	77001	(713) 812-4515	981-98-4444	Marketing	TE	\$12,000.00
Marano	Wendy	3755 Sam Cliff Drive	Newport	CA	94645	(415) 988-4515	981-98-4444	Marketing	TE	\$12,000.00
Marano	Thomas	4533 Orange Drive	Newport	CA	94645	(415) 988-4515	981-98-4444	Marketing	TE	\$12,000.00
Marano	David	304 - 22nd Avenue	Newport	CA	94645	(415) 988-4515	981-98-4444	Marketing	TE	\$12,000.00
Marano	Christa	1648 Sullivan Street	Newport	CA	94645	(415) 988-4515	981-98-4444	Marketing	TE	\$12,000.00
Marano	John									

*Lisa's revolutionary printing technology gives you unparalleled flexibility. Different typesizes, various paper sizes, horizontal and vertical formats are all available from Apple's Dot Matrix and Daisy Wheel Printers.*

built-in disk drives, provide 6.7 megabytes of formatted document storage capacity for large business problems.

- Lisa's 32/16 bit MC68000 microprocessor provides all the power you'll need to work efficiently with any Lisa document.

#### Create perfect printouts every time.

- What you see on Lisa's bit-mapped, 12-inch (305 mm) screen is exactly what you get on the printed page.

- Lisa's graphics and timesteps [up to 1/3-inch (8.47 mm) tall] are reproduced with unparalleled quality on both Apple's Dot Matrix and Daisy Wheel Printers.

#### Add software and peripheral products as your needs grow.

- Development tools—BASIC, Pascal, and COBOL—are available for creating new applications.
- Lisa accommodates peripheral

products such as hard disks, printers, and modems.

- Built-in serial and parallel ports make it easy to connect peripherals.

- Three internal expansion slots let you add special equipment.

#### Share valuable information and peripherals using Lisa's communication capabilities.

- Terminal emulators allow you to access information from other

computers, including IBM hosts.

- AppleNet, Apple's network, will support all Apple products.

#### Make your office more efficient without disrupting it.

- Lisa's compact, attractive design and silent operation make it unobtrusive in the office.

- The simple, modular design makes it easy to unplug components for basic servicing.

#### Unmatched Print Quality

- Apple's Dot Matrix Printer produces high-resolution text and graphics that match that of printers costing ten times as much.
- Apple's Daisy Wheel Printer produces all timesteps generated by Lisa, as well as graphics.
- One printout is all you'll ever need because what you see on the screen is exactly what you get on the printed page.
- A variety of timesteps is available, including styles 1/3-inch (8.47 mm) tall for presentations and transparencies.
- Print a document with 132 columns on ordinary 8 1/2 x 11-inch (215 x 279 mm) paper.
- Lisa's background printing feature enables you to print one document while working on any other application.
- Print in either vertical or horizontal formats.

#### An Integrated Office System

- LisaTerminal, an asynchronous communications package (TTY, VT52, VT100), lets you access corporate mainframes and mini-computers, exchange data with LisaWrite, and transfer data from LisaCalc.
- Lisa will provide access to IBM hosts through a 3270 communications package and Apple's cluster controller emulator.
- AppleNet, Apple's own local area network, is inexpensive, reliable, and easy to install. You'll be able to use it to share information and peripherals.
- A separate Ethernet interface will enable you to connect to an Ethernet network.

#### A System That's Easy to Expand

- Pascal, BASIC, and COBOL are available so independent software developers will be able to write software for additional applications.
- Printers and modems can easily be added with Lisa's built-in serial and parallel ports.
- Three expansion slots provide even more flexibility and growth potential.

#### MEMORANDUM

John — January 27, 1983  
Here's a copy of the alternative floor plan for our section. Please look it over. This arrangement would give us more offices with windows, though of course they are smaller than the current layout. It also allows room for 3 more offices, so that we can absorb section growth for the next 4 months and still keep us all together.  
Facilities has approved this layout, though of course they're not too happy about the change. If we let them know by next Friday, they can have it done over the holiday break.  
What do you think?  
Dave

*What you see on Lisa's screen is exactly what you get on the printed page. Apple's Dot Matrix and Daisy Wheel Printers both produce presentation-quality documents.*



# Lisa's Desktop Manager

**Lisa** works the way you do at your desk. Just as you have folders, documents, and other typical office objects on your desk, Lisa's screen is a "desktop" with the same kinds of objects. This simple desktop model makes Lisa the only computer you already know how to use. For example, if you were to write a memo at your desk, you would reach for a pad of paper and begin writing. You do it the same way with Lisa; simply use the mouse to select the LisaWrite paper and "tear off" a piece of LisaWrite paper. Then, without any special commands, start typing. And switching from one document to another is as easy as reaching across your desk.

**Lisa's Desktop Manager** takes care of all the "housekeeping," such as filing and organizing your desktop. To file a Lisa memo, simply use the mouse to place the memo in a particular folder. In this manner, the Desktop Manager also enables you to easily find a document. You can arrange everything on your desktop—move documents, cover or overlap them, change their size or shape, and position the graphic symbols anywhere you want—using only the mouse. Lisa does all this graphically and without the keyboard—making it dramatically easier for you to learn and use this revolutionary personal office system.

**Stationery** To begin a document, use the mouse to select the appropriate stationery pad and "tear off" a sheet of paper.

**Mouse** The mouse is a palm-size device that controls the pointer on Lisa's desktop. As you move the mouse on your desktop, the pointer moves on Lisa's screen. It replaces all confusing special function keys and commands.



**Folders** Folders enable you to group documents on a disk for easy reference. For example, you could name a folder "Letters to Chicago office" and use it to hold all correspondence to that office. You can also put folders within folders for easy referencing.

**Disks** Documents, folders, and stationery are stored on diskettes and the ProFile. Lisa's Desktop Manager enables you to view the contents of any disk at any time.

The screenshot shows the Lisa Desktop Manager interface. At the top is a menu bar with options: File/Print, Edit, Type Style, Page Layout, Format, Graph, and Customize. Below the menu bar are several overlapping windows:

- Profile**: A window titled "Profile" showing "3251 blocks free out of" and icons for "LisaWrite Paper", "Forecast", and "Budget Memos".
- Quarterly Budget**: A window titled "Quarterly Budget" with a table of values and formulas.
- Budget vs. Expense**: A window titled "Budget vs. Expense" containing a table of quarterly data and a bar chart titled "EXPENSES VS. BUDGET".

The bar chart shows quarterly expenses and budgets. The Y-axis is labeled "\$/QTR" and ranges from 0 to 800. The X-axis is labeled "1st", "2nd", "3rd", and "4th". The legend indicates that the solid bars represent "Expense" and the dotted bars represent "Budget".

The "Budget vs. Expense" table data is as follows:

	B	C
1	142.97	205.10
2	230.61	290.10
3	465.09	380.10
4	561.83	525.10
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		

The "Quarterly Budget" table data is as follows:

	A	B	C	D
1		Project	Budget	Fiscal
2				
3	(000's except Staff)	1083	2083	3083
4				
5		7		14
6		1	2	4
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				

The "Budget vs. Expense" table data is as follows:

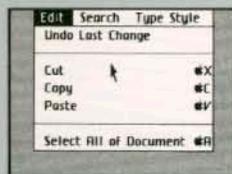
	B	C
1	68.00	\$101.22
2	111.20	65.79
3	114.40	21.60
4	6.21	9.29
5	0.18	0.27
6	9.00	13.50
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		

The "Quarterly Budget" table data is as follows:

	B	C	D
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			

**Integration** More than one Lisa document may be open on the screen at one time. To move information from LisaCalc to LisaGraph, simply use the mouse to select COPY from the menu. When you're ready to transfer the information into another document, select PASTE and your data is moved.

**Menu Bar** All Lisa functions are selected from menus. To print a document, for example, just move the mouse and select PRINT from the menu bar. A short list of options then appears. Once printing is under way, you may continue working with Lisa, either in the same or another document.





## Hardware:

- 32/16-bit MC68000 main microprocessor.
- 1 megabyte memory capacity is standard.
- Apple's ProFile hard disk provides 5 megabytes of disk storage.
- Two built-in disk drives provide 1.7 megabytes of formatted floppy disk capacity.
- 12-in. (305 mm), bit-mapped display screen (364 lines × 720 dots).
- High-resolution black on white display.
- Selectric-style, detached keyboard with 10-key pad.
- One-button mouse.
- Two RS-232C serial ports.
- One parallel port.
- Three expansion slots.

## Software:

- Applications: LisaCalc, LisaList, LisaProject, LisaWrite, LisaGraph, LisaDraw.
- Languages and development tools: Pascal, BASIC, COBOL, Editor, assembler, debugger, and linker.

## Communications:

- LisaTerminal (TTY, VT52, VT100), 3270.

## System expansion:

- Printers: Apple Dot Matrix, Apple Daisy Wheel.
- Additional hard disks may be attached.
- Lisa supports synchronous and asynchronous modems.
- Parallel Interface Card (2 ports).
- Local Area Networks: AppleNet and Ethernet.

## Weight and dimensions:

- Computer console:
  - Weight: 48 lb (22 kg).
  - Height: 13.8 in. (350 mm).
  - Width: 18.7 in. (475 mm).
  - Depth: 15.2 in. (388 mm) [16 in. (403 mm) deep with keyboard in storage position.]

## Power requirements:

- 115 or 230 V AC.
- 48 to 68 Hz.
- 270 W (maximum).

## Environmental requirements:

- Ambient temperature: 40°–108°F (5°–42°C).
- Relative humidity: 15–80%, noncondensing.

### Apple/U.S.

Apple Computer, Inc.  
20525 Manani Avenue  
Cupertino, California 95014  
(408) 996-1010  
TLX 171-576

### Apple/U.K.

Apple Computer (U.K.) Ltd.  
Eastman Way  
Hemel Hempstead  
Herts HP2 7HQ  
England  
011-44-442-60244  
TLX 851-825834

### Apple/Europe

Apple Computer International  
5/7 rue de Chartres  
92200 Neuilly-sur-Seine  
France  
011-33-1-624-21-13  
TLX 842-630296

### Apple/Canada

Apple Canada  
875 Don Mills Road  
Don Mills  
Ontario, Canada M3C 1V9  
(416) 444-2531  
800-268-7637  
TLX 06-986561

*Lisa*

Lisa. It works the way you do.



**T**

his is Lisa.™

**It's the only personal system of its kind. It doesn't work like a conventional personal computer. It works the way you do.**

**Lisa follows your natural work habits. It replaces conventional computer commands with pictures, pictures that let you work with the entire Lisa system in the same familiar ways you've always worked at your own desk. You control Lisa by simply pointing to the images on the screen. From the start, you understand intuitively how Lisa operates.**

**Lisa follows your natural habits of mind, too. From a pool of powerful business tools, you spontaneously select what you need, exactly when you need it. The system lets you create and combine words, numbers, lists, graphs, and pictures to produce the clear information you see in your mind.**

**Lisa follows the way you actually work in the office. It's not another personal computer. It's a personal office system. And it's nothing short of a revolution.**





**T**his is Lisa at work. You use the system in the same spontaneous way you handle office work at your desk.

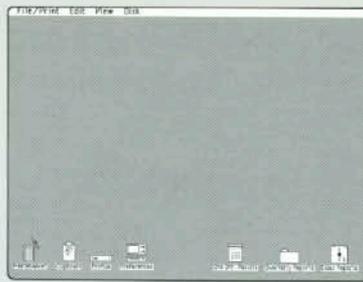
You control the entire system instinctively with a clever device called a mouse. Use it to point to the graphics and words on the screen. When you select what you want, Lisa responds instantly.

The system lets you work with different kinds of business applications and information simultaneously (shown here are LisaGraph, LisaCalc, and LisaWrite). The system also lets you move information between documents, cutting it from one and pasting it into another. You do it all with just a few moves of the mouse.

You can do more by moving the graphic symbols themselves. To store a document, for example, use the mouse to move the document symbol onto a folder symbol. To throw out a document, move its symbol onto the wastebasket. The combinations are instinctive and fast.

Your eye, your hand, and your natural way of doing things. Lisa follows them all. That makes Lisa the one personal system you already know how to use.

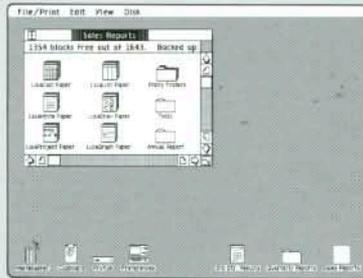
**W**hen you use the Lisa system, you work with a remarkable combination of features that no conventional personal computer has. Because they work together so naturally, however, you may not notice them all. What you certainly will notice is the system's simplicity and power.



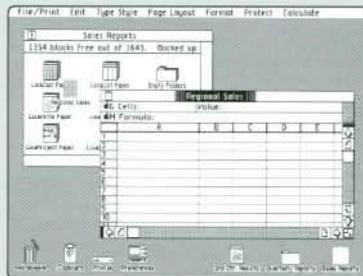
## The Desktop Manager

1. At the heart of the system, the Desktop Manager automatically coordinates all operations. It organizes the system's functions with these graphic symbols and, at the top of the screen, the menu bar.

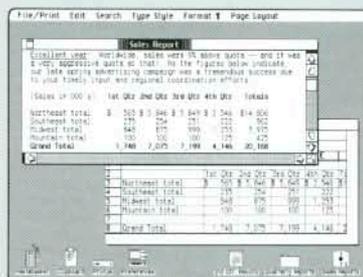
Using the mouse and the symbols, you can select any file folder stored on disk, select any application, throw out old information, or cut material from one document and paste it into another.



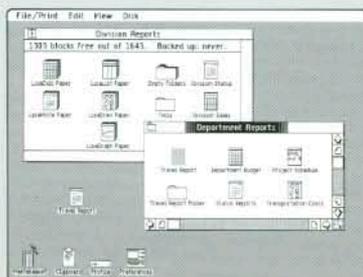
2. With Lisa, you literally see what's saved on any disk. Select a disk symbol with the mouse and a "window" expands to show the disk's contents. Selecting these newly revealed symbols, in turn, lets you start new work, revise work in progress, or put documents in file folders.



3. The most natural way to work with figures is to find a pad of paper, tear off a sheet, put it on your desk, and begin. The Desktop Manager lets you use Lisa the same natural way. Select the LisaCalc paper symbol and a single sheet is automatically detached. Prepare the sheet for work by labeling it ("Regional Sales," in this example) and then select it with the mouse. A window expands as in 2. The menu bar automatically changes to show LisaCalc operations. Everything is ready for work.



4. The Desktop Manager lets you work with different kinds of documents simultaneously. Using only the mouse, in seconds you can cut material from one document and paste it into another.



5. You can reorganize all stored information by rearranging the symbols with the mouse. When documents and folders are grouped the way you want them, press the mouse button and the Desktop Manager automatically does the rest.

## The Mouse

This simple device is used for almost all operations. The keyboard is just for typing.

The mouse controls a pointer on the computer's screen. You move the mouse with one hand—on the screen, the pointer matches the mouse's movements.

Using the mouse, you can instinctively point to any image on the screen. To select any operation, just point to the image—symbols, menus, and so forth—and push the mouse button. Instantly, that operation begins.

The mouse and the natural movement of your own hand. They're all you need to control Lisa.

## The Learning Advantage

Each of Lisa's applications has a menu bar at the top of the screen. Many items in the menu bars are common to all—File/Print, Edit, and Typestyle, for example—and always work the same way. That means learning to use one application teaches you how to proceed with another. And another and another.

The menu bar lets you actually learn to do useful work with an application in 20 to 30 minutes. In less time than it takes to learn a typical personal computer program, you can learn to use *all* of Lisa's business tools.

## Integrated Software

Lisa coordinates its six business applications—LisaCalc, LisaList, LisaProject, LisaWrite, LisaGraph, and LisaDraw—in a way no personal computer can match. Lisa lets them share information. In seconds, you can examine data in all kinds of ways by transferring it from one document to another.

When you use LisaWrite to write an important cost analysis report, for example, you can also include any LisaCalc spreadsheet that proves your point—on the page you want, in the paragraph you want. Using LisaGraph, you can show the same figures in graph form, too, to make your point even clearer.

Lisa makes this kind of effective communicating practical because Lisa makes it radically simpler and faster to move information from document to document. Cutting financial data from a LisaCalc table, for example, and pasting it into a LisaWrite report can be done in seconds with the mouse.

No conventional personal computer can begin to approach such simplicity and power.



**L**isa follows the way you work. And it follows the way your entire company works, too. In small firms, large firms, even rapidly growing firms, Lisa has the power and flexibility to go to work right now.

At your desk, the powerful Lisa system is remarkably easy to use. Yet it accommodates even the largest individual projects. You can add printers, more storage, and data communication, whenever it suits your plans. And if your plans are big, Lisa will expand into an advanced, cost-effective network. One that can cover your entire organization.

Lisa can follow your need for software, too. Six comprehensive applications handle the most important business functions — spreadsheet modeling, list management, project management, word processing, business graphics, and presentation graphics. And they're just the start. When you need to develop your own programs, Lisa's languages and advanced development tools help you put together all the software you need. And every day, more software and hardware are being developed to increase Lisa's power and flexibility.

Service is flexible, too. Lisa is backed by service and support that keep you running smoothly, day and night, no matter how your needs change.

All this makes Lisa perhaps the most comprehensive, cost-effective personal computer you can own — now, and years from now.



**M**easured by the standards of technology and the demands of business, the Lisa system is formidable. The main processor is among the most advanced available. Main memory holds a million characters. Built-in and plug-in disk drives store millions more. And the entire system can be expanded in extraordinary ways.

At the same time, Lisa's technical strength serves one straightforward business demand—the demand for an affordable, simpler, far more effective personal computer.

It's for business reasons, for example, that Lisa's main circuit boards and disk drives are plug-in modules. That makes repairs fast and inexpensive. Lisa also automatically dims the screen when your work is interrupted. That prolongs screen life. And when you turn the system off, it automatically stores your work before it shuts down. That protects your irreplaceable business information. When you next turn the system on, your work reappears *exactly* as you left it.

The Lisa system is high technology made simple. And that makes it effective.



#### **The Keyboard**

*It's standard and simple—the mouse replaces the confusing special function keys that crowd other computer keyboards. Lisa's keyboard also has a numeric keypad and many advanced ergonomic features.*



#### **The Screen**

*Lisa's 12-inch, bit-mapped, black-on-white screen displays 364 lines of 720 dots each. That lets you create extraordinary graphics and up to 132 columns and 40 rows of sharp, clear text.*

*Most important, the screen makes it easy to produce office work that communicates. What you create on the screen—text in a wide range of sizes and typstyles, proportional spacing, even elaborate graphics—is precisely what you'll see in print.*

#### **Storage**

*All business applications and information files are instantly available because they're stored on ProFile,™ Apple's five-megabyte high-speed hard disk. Two built-in 5¼-inch double-sided floppy disk drives handle an additional 1.7 megabytes of data and let you quickly copy new information into ProFile, make backup copies of files, perform automatic system tests, and use additional languages and programs.*



### **Advanced Design**

Lisa is self-contained, has no fan, and uses less desk space than most conventional personal computers. The mouse and keyboard are both separate from the console, so you can position them comfortably. The mouse controls the entire system. The keyboard is just for typing.

The system's 32/16-bit central processor (the MC68000) has the capacity to handle even large office projects fast. Three additional processors—for the keyboard and disk drives—make the whole system extremely responsive.

Lisa's one-megabyte main memory easily accommodates even the heaviest work loads—major reports, exhaustive lists, huge spreadsheet tasks, and more.

When you do office work, you do several things at once. Lisa is made to do the same. Its multitasking design lets you print a report, for example, while doing other important work on the screen.



### **Powerful Plug-ins**

*At the back of the system are three outlets for plugging in printers, modems (including auto-dial/auto-answer), and hard-disk storage. There's also a composite video jack for special equipment like external monitors.*

*Three internal expansion slots let you add specialized equipment. They'll also let you plug Lisa into AppleNet™, the cost-effective Apple network.*

### **System Growth**

*A Lisa system grows to fill increasing demands—including those of large organizations. Lisa is designed to grow into a complete network of systems sharing storage, printing, and critical information throughout your entire company.*



### **Simple Service**

*Inside the system, components are organized into simple plug-in modules—five basic circuit boards and two disk drives. Using Lisa's self-diagnostics software, defective modules can be identified, unplugged, and replaced in seconds.*

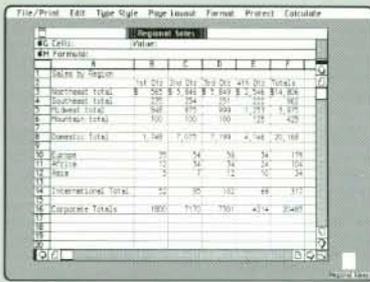


**L**isa's business applications are prodigious office tools that streamline all your work—from forecasting and project management to report writing and presentations.

But Lisa's software does much more. Unlike conventional programs, Lisa's applications work harder by working together—information can be cut from one and pasted directly into another. For example, you can instantly clarify complex LisaCalc data by pasting it into LisaGraph. You can also insert the data into reports, right where you need it. The possibilities are endless. Cutting and pasting are done simply, in seconds, using only the mouse.

All of Lisa's applications work the same way. Learn one program and you'll learn the next even faster.

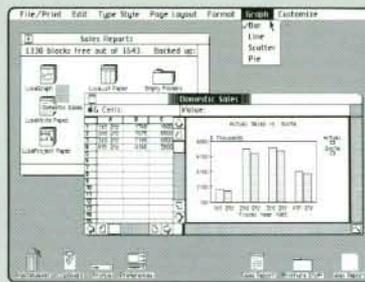
Lisa's integrated business tools make a whole that's greater than the sum of its parts. That gives you a business advantage that no conventional personal computer offers.



## LisaCalc

From budgets to forecasts to technical models, LisaCalc helps you with all kinds of calculations and analyses. Put your numbers and formulas in the displayed columns-and-rows spreadsheet and LisaCalc does the rest. You can calculate—and instantly recalculate—intricate problems to quickly find answers you need.

LisaCalc's spreadsheet format is big enough to handle the largest projects—255 columns by 255 rows. At the same time, LisaCalc calculates to 15 digits to provide the most precise data. Any column can display data in 10 different formats and be quickly expanded, contracted, and repositioned.

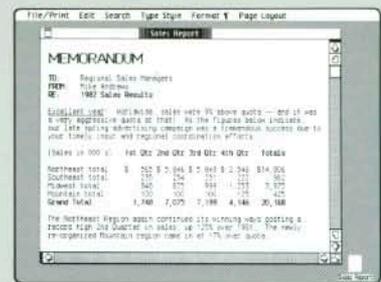


## LisaGraph

LisaGraph turns complex data into easy-to-understand graphs.

Unlike other graphics programs, LisaGraph lets you see both graph and data at the same time. On the screen, a spreadsheet is displayed next to the graph. When you enter numbers in the spreadsheet, LisaGraph plots them automatically. LisaGraph makes five kinds of graphs—bar, line, mixed bar/line, pie, and scatter. It also plots up to seven data sets on a single graph.

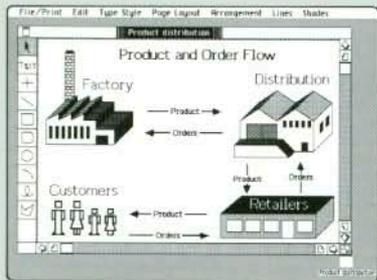
LisaGraph automatically plots whole blocks of data when you cut and paste numbers from LisaCalc. In turn, graphs can be cut and pasted into LisaDraw for extensive graphic customization.



## LisaWrite

LisaWrite gives you responsive, personal word processing for everything from the shortest memos to the longest reports. With the preview feature, you can review final line spacing, page breaks, headers and footers, and more before you print a document. Perfect final drafts are routine because what you see on the screen is exactly what you get on paper.

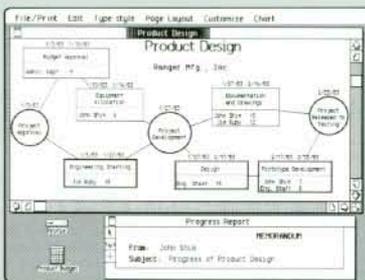
Editing is extremely fast and easy and can be done with the mouse or the keyboard. Special features are easy to use, too. Using the mouse, you can create bold, italic, and underlined text in a wide variety of sizes and typesets.



## LisaDraw

With the right pictures, reports and presentations become shorter, clearer, easier to prepare, and far easier to understand. LisaDraw helps you do all that. And it's easier to use than a pencil and paper.

LisaDraw actually lets you draw perfect flow charts, technical diagrams, designs, maps—almost any illustration your work requires. LisaDraw lets you use the mouse to assemble lines, rectangles, circles, and much more, in any size and combination. You can even draw freehand.



## LisaProject

At last there's a tool that helps you manage complex project schedules and ask important "what if" questions about time and resources.

Modeled on the PERT project management technique, LisaProject automatically keeps track of the complicated interdependencies within large projects.

LisaProject lets you use the mouse to chart a project's critical path. When you change deadlines and resources, LisaProject automatically recalculates the entire project. You see immediately what effects those changes will make.



## LisaList

Client lists, competitive product information, job candidate data, and other records are packed with useful information—if you can extract it. With LisaList, you can.

Using LisaList, you can instantly search and sort any list for the information you need. LisaList makes it simple, too, because it's all done with the mouse. Columns can be added or deleted, expanded or narrowed, repositioned and even displayed or hidden at any time without re-entering data.

**W**hat a single Lisa system does is impressive. But what many Lisas can do together is nothing short of amazing.

Your own Lisa system gives you powerful, spontaneous help for every personal office task, from writing brief memos to making large financial models.

The same system can bring massive amounts of valuable information to your desk by giving you access to mainframe data libraries almost anywhere. Lisa makes it easy, too. As always, you use the mouse.

And when your system works with other Lisa systems, the benefits expand dramatically. Lisa systems can be linked together with AppleNet, the Apple network. Immediately, an entire department can work together as never before, spontaneously sharing and combining information in powerful new ways. When several departments are linked to several more departments, the effect is multiplied. The larger the company, the greater the effect.

### **The Personal Lisa**

Lisa's effectiveness starts as soon as you plug it in. The system performs all the powerful functions you need with stunning simplicity. Surprisingly, it's priced like many conventional personal computers. Even if your department's budget is limited, you can put Lisa to work in your office now.

### **More Storage**

Adding even more storage is simple—just plug in more ProFiles. You can attach several, adding them one at a time as you need them.

### **Languages**

Lisa runs powerful versions of Pascal, BASIC, and COBOL, so you can run as well as write business programs in those languages. Using the Lisa Applications Development Tool Kit, programmers will be able to create Lisa-style programs and extend Lisa's powers even further.

### **Printer Breakthrough**

With its dot matrix and daisy wheel printers, Lisa produces printed materials that no similarly priced system can begin to match.

Lisa's dot matrix printer reproduces everything—manuscripts, charts, graphic designs—exactly as you see it on the screen. Its sharpness matches that of printers costing much more.

In high-resolution mode (160 x 144 dots per inch), this printer does presentation-quality work, with proportional spacing, bold, italic, and underlined type in 11 different sizes and styles. Draft mode prints lists and reports at 120 characters per second. All work can be done in vertical or horizontal formats.

Lisa's daisy wheel printer does more, too. Like the dot matrix printer, it produces exactly what you see on the screen—including graphics that are far beyond the ability of any other daisy wheel printer. New multipitch and multifont printwheels, plus a unique wheel that generates 168 characters, give you more printing convenience and flexibility because they last longer and do more than conventional wheels. Lisa's daisy wheel printer prints 45 characters per second.

Both printers are ready to run when they're plugged in. Both handle cut sheet and continuous form paper. And both are simple to configure, using the mouse.





## **Data Communication**

Lisa can share information with a broad range of sources. Through LisaTerminal, Lisa's asynchronous communications software, Lisa communicates with commercial databases, such as Dow Jones News Retrieval Service, The Source, and CompuServe, and with other microcomputers.

With characteristic simplicity, Lisa also acts as a terminal for corporate mainframes, central minicomputers, or virtually any other large computer system.

Using the LisaTerminal program, Lisa does the work of VT100, VT52, or TTY terminals. LisaTerminal works simply, like all Lisa applications. Use the mouse to point to operations on the familiar pull-down menus. If you want, you can copy-and-paste mainframe information into LisaWrite and vice versa.

LisaTerminal will also connect to the Apple Cluster Controller to let you access IBM computers using 3270BSC or 3270SNA protocols. Other communication products will soon follow.

## **AppleNet**

Any Lisa system can become part of a powerful Lisa network through AppleNet.

AppleNet, the Apple network now in development, will link together Lisas and other Apple systems. With AppleNet, the right information gets to the right people instantly. AppleNet can start small and, as the need arises, expand to cover an entire corporation. And AppleNet is designed to be flexible, fast, inexpensive, easy to install, and reliable.

## **More to Come**

New software and hardware will continually expand the Lisa system's effectiveness.

Apple has planned an entire family of system, data communication, and network devices. Other developers are already at work on Lisa's future as well. The advanced Lisa Applications Development Tool Kit, created to make extensive software development easy, is also on the way.

**S**upport and service for Lisa are as flexible and comprehensive as the system itself.

Lisa instruction, for example, is efficient in organizations of any size. With the system's innovative self-teaching materials, a single user can put Lisa to work in less than 30 minutes. Conventional self-instruction takes about ten times as long. And if whole departments need to learn en masse, Apple can provide complete training programs—and even help your business develop its own specialized programs.

Service for Lisa is just as broad. You can get fast, economical service for a single system or a corporation's entire network. You can even set up your own service department. Apple will provide all the training and supplies.

In a word, no matter how you put Lisa to work in your company, you'll have support and service that work the way you want.

### **Learning Time— Yet Another Breakthrough**

Lisa's training materials are as simple and intuitive to use as Lisa itself. By loading a single training disk into the system, you try Lisa immediately and, at the same time, learn to use the Desktop Manager. Then you start learning business applications. Each application's brief pictorial guide, called "Getting Started," teaches you to do useful work with that application in 20 to 30 minutes. Less than a half-hour. There's nothing like it for conventional computers.

When you want additional instruction, other self-teaching materials provide more information and quick, clear answers to a host of specific questions.

### **Corporate Training**

Apple can give self-paced, self-testing courses to an entire organization. Or Apple can help your company set up its own specialized training program.

### **Carry-in Dealer Service**

You can get fast, low-cost service for any Lisa system by simply taking it to an authorized Lisa dealer. Usually, your dealer services your system while you wait.

### **Service and Support by the Numbers**

When you need help, it's available through the toll-free Lisa phone number.

Call when you need answers about any part of the system. You'll reach a Lisa specialist immediately.

Call when you need on-site repairs. Complete Lisa service can be there in four hours or less. Any hour, seven days a week, if need be.

Call when you want to stop calling altogether—Apple can help your company set up its own Lisa service and support department.

### **The Lisa System. You Should Know More.**

It's the only personal computer that works the way you do. To learn how you can put Lisa to work in your office, call Apple at 800-662-9238. We'll give you the phone number of the national accounts office or authorized Lisa dealer in your area.



# Specifications

## Display:

- 12-inch screen (measured diagonally).
- Full-screen bit-mapped display:
  - 364 lines by 720 dots.
  - up to 45 lines of 144 characters.
- 60 Hz refresh rate.
- 64 levels of contrast under software control.
- Glare-reducing screen (enhances contrast).

## Keyboard:

- Detached, IBM Selectric® type with N-key rollover.
- Sculptured keytops (textured, non-slip, non-glare).
- Numeric keypad with raised dot on 5 key for quick positioning.
- Full ASCII character set with up to 76 keys.
- All keys programmable for special characters or functions.
- Smart interface with control-oriented processor.

## Mouse:

- Extremely fast, intuitive cursor positioning.
- Works well on any surface.
- Simple one-button design eliminates confusion and the need to learn commands.

## Disk storage:

- 860K bytes (per drive) formatted storage (1.4 megabytes unformatted).
- 62.5 tracks (10,000 bits) per inch.
- Automatic head loading.
- Automatic disk eject under software control.
- Smart interface with 6504 processor.

## Main processor:

- MC68000 32/16-bit CPU:
  - 32-bit internal architecture.
  - 16-bit external data path.
  - 7 levels of interrupts.

## Real-time clock:

- Software on-off control.
- Interval and event timing.

## Main memory:

- 16K bytes of startup ROM.
- Up to one megabyte of RAM.
- Parity error detection.

## Memory management:

- Permits operating system to relocate segments in memory.
- Provides access controls for blocks of memory.
- Segmentation into 128 variable-length blocks dynamically controlled by memory map table.

## Communications interface:

- Two serial ports:
  - Intelligent controller:
    - full-function, programmable (asynch, bisynch, SDLC, HDLC).
- RS-232C with half- or full-duplex channels.
- Full modem control and ring indicator on one channel.
- Software-programmable Baud Rates.
- One parallel port:
  - 6522 interface adapter.
  - 8-bit bidirectional with handshake control.

## Audio output:

- Built-in speaker with software-controllable tone generator.

## Expansion board slots:

- Three slots.
- Zero-insertion-force connectors.
- Direct connection to system bus.
- DMA capability.
- Memory-mapped I/O.
- Vector interrupt capability.
- Direct connection of power supply:
  - digital ground.
  - +5 V, +12 V, –12 V, –5 V (100 mA max).
  - allows up to 15 W total (maximum rating) for all three cards.
  - +5 V standby (at 50 mA) per board.

## Weight and dimensions:

- Computer console:
  - Weight: 48 lb. (22 kg).
  - Height: 13.8 in. (350 mm).
  - Width: 18.7 in. (475 mm).
  - Depth: 15.2 in. (388 mm) [16 in. (403 mm) with keyboard under front].
- Keyboard:
  - Weight: 4 lb. (1.8 kg).
  - Height: 2.7 in. (68 mm).
  - Width: 18.7 in. (475 mm).
  - Depth: 6.5 in. (165 mm).

## Power requirements:

- 115 or 230 V. AC.
- 48 to 68 Hz.
- 270 W (maximum).

## Environmental requirements:

- Ambient temperature: 40°–108° F (5°–42° C).
- Relative humidity: 15–80%, noncondensing.

### Apple/U.S.

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

### Apple/U.K.

Apple Computer (U.K.) Ltd.  
Eastman Way  
Hemel Hempstead  
Herts HP2 7HQ  
England  
011-44-442-60244  
TLX 851-825834

### Apple/Europe

Apple Computer International  
5/7 rue de Chartres  
92200 Neuilly-sur-Seine  
France  
011-33-1-624-21-13  
TLX 842-630296

### Apple/Canada

Apple Canada  
875 Don Mills Road  
Don Mills  
Ontario, Canada M3C 1V9  
(416) 444-2531  
800-268-7637  
TLX 06-986561

®Apple and the Apple logo are registered trademarks of Apple Computer, Inc.

™Lisa is a trademark of Apple Computer, Inc.

Dow Jones is a trademark of Dow Jones & Co., Inc.

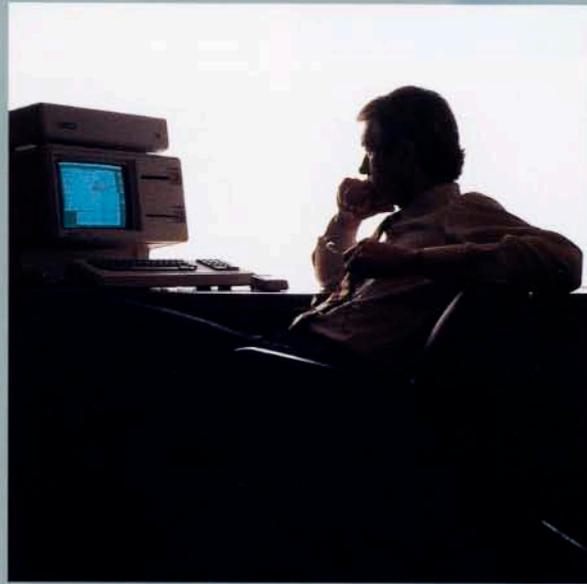
The Source is a service mark of Source Telecomputing Corp., subsidiary of The Reader's Digest Association, Inc.



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

*Lisa*

Lisa. It works the way you do.



# This Is Lisa, From Apple.

You've never worked with a personal computer like it. Because Lisa™ works the way you do.

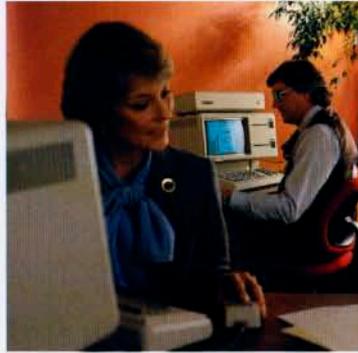
The system is so simple to use that you control it intuitively. Lisa has no conventional computer commands. Instead, you operate it by pointing to familiar pictures on the screen. You can actually learn to do useful work with Lisa in 20 to 30 minutes.

Lisa's radical simplicity is matched by its power. The system replaces conventional computer programs with a pool of powerful business tools. From it you spontaneously select what you need, exactly when you need it. Words, numbers, charts, graphs, pictures — Lisa lets you create and combine them naturally to produce clear answers to your questions and clear information for your organization.

The Lisa system. The only personal computer that's simpler and more powerful is your own mind.

## The New Computing

**Lisa at Work.** You can do more using Lisa and one hand than you can using a conventional computer and both hands. That's because you control the entire Lisa system with a simple device called a mouse. The keyboard is just for typing.



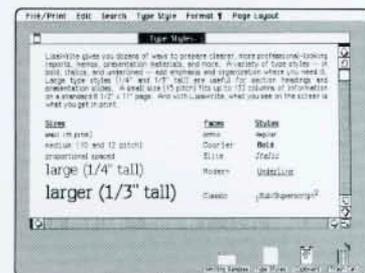
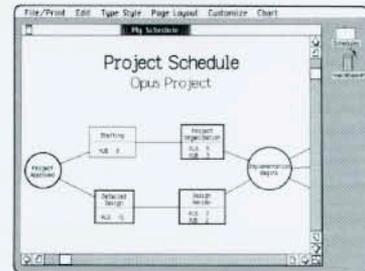
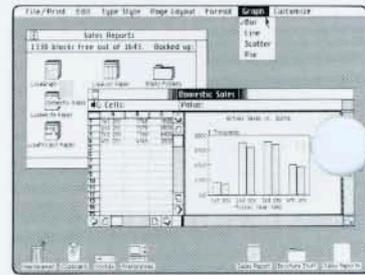
With the mouse, you control a pointer on the computer's screen. Point to the screen's graphic images, select what you want, and Lisa does the rest instantly. With incredible speed and simplicity — and without the usual thicket of computer commands — you handle every operation you need.

Using the mouse and Lisa's graphics, you can select and operate any business application: move information from one application (such as LisaCalc) to another (such as LisaWrite); create, examine, reorganize, and revise files; run modems, printers, and other peripheral devices; and communicate with central computers.

The mouse and the natural movement of your own hand. They're all you need to control Lisa. That makes it the one personal computer you already know how to use.

**Learn Faster, Do More.** Each of Lisa's six business applications is formidable. LisaCalc, LisaList, and LisaProject let you do modeling, list management, and project scheduling. LisaWrite handles everything you write. LisaGraph and LisaDraw help you create business graphs and virtually any other graphics that your work requires.

But what each application does is only the start. Working together, they do even more.



First, all of Lisa's applications are controlled in the same way — using the mouse. That lets you learn your first application fast, and subsequent applications even faster. In fact, in less time than it takes to learn a typical personal computer program, you can learn to use *all* of Lisa's business applications.

Second, valuable data from one application can be made even more valuable by using it in another application. For example, you can cut important infor-



mation from LisaCalc and paste it into a LisaWrite report. The possibilities are endless. They're also simple and spontaneous because cutting and pasting are done in seconds, using only the mouse.

### **A Picture Vs. A Thousand**

**Words.** Lisa also gives you the unparalleled advantage of using pictures as easily as words. That lets you communicate in radically simpler, more powerful ways. Graphs and charts are just the start. Lisa's remarkable software frees you to create precisely the illustrations your messages need—everything from quick sketches in memos to sophisticated materials for presentations.

And Lisa lets you print all of it exactly as it looks on the screen. Lisa's dot matrix printer reproduces *all* your work with a sharpness matched only by printers that cost much more. Lisa's daisy wheel printer can duplicate anything on the screen, too, including graphics.

Lisa's integrated software and extraordinary graphics let you multiply the power of all your information. That gives you a business advantage that no conventional personal computer offer.

### **Technology That Means Business**

**Unmatched Hardware.** On your desk, Lisa is quiet (no fan), convenient (advanced ergonomics), and streamlined (reduced footprint). It also has the speed and capacity to crunch every task you use it for. The system has a 32/16-bit central processor, and one megabyte of main memory.

It uses ProFile,<sup>TM</sup> Apple's high-speed hard disk storage device, to keep all business applications and files instantly available. Two built-in floppy disk drives handle an additional 1.7 megabytes of usable information and let you quickly make backup files, do automatic system tests, and use additional data, languages, and programs. Lisa also handles extra tasks, such as printing, while you continue important work on the screen.

Lisa's keyboard is standard and simple—the mouse replaces special function keys. The 12-inch, bit-mapped, black-on-white screen lets you create extraordinary graphics and up to 132 columns and 40 rows of sharp, clear text.

At the back of the system, you can plug in printers, modems (including auto-dial/auto-answer), and more.

**Supersoftware.** Lisa's six comprehensive applications are prodigious office tools for the most important business functions. Its sophisticated spreadsheet, list management, word processing, and graphing applications do far more and are easier to use than any typical personal computer programs. And Lisa's project scheduling and graphics editing applications do fundamental management tasks that are simply not possible with conventional personal computers.

These six are just the start. Three languages—powerful versions of BASIC, Pascal, and COBOL—let you use as well as write additional business

programs. And with the Lisa Applications Development Tool Kit, programmers will be able to create Lisa-style programs that extend the system's powers even further.

### **Lisa In Your Office**

**Today.** Lisa's effectiveness starts as soon as you plug it in. The system performs all the powerful functions you need with stunning simplicity. Surprisingly, it's priced like many conventional personal computers. Even if your department's budget is limited, you can put Lisa to work now.

**And Tomorrow.** Better still, you can keep Lisa working even when your department grows. That's because the Lisa system expands in amazing ways. You can use Lisa to search valuable commercial data bases such as MicroNet, Dow Jones News And Quotes, and The Source. You can use Lisa as a terminal for corporate mainframes, central minicomputers, or virtually any other large computer system. And you'll be able to link together any of your Lisa systems (and other Apple computers) with AppleNet<sup>TM</sup>, the fast, inexpensive, reliable network being developed by Apple. AppleNet can start small and grow to cover your whole organization.

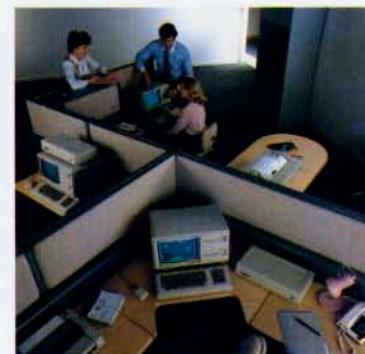
**All Kinds of Backup.** Support and service for Lisa are as flexible and comprehensive as the system itself.

Lisa instruction, for example, is efficient in organizations of any size. With the system's innovative self-teaching materials, a single user can put Lisa to work in less than 30 minutes. Self-instruction for conventional per-

sonal computers takes about ten times as long. And if whole departments need to learn en masse, Apple can provide complete training programs—and even help your business develop its own specialized programs.

Service for Lisa is just as broad. You can get fast, economical service for any number of systems. You can even set up your own service department. Apple can provide all the training and supplies.

In a word, no matter how you put Lisa to work in your company, you'll have support and service that work the way you want.



### **The Lisa System. You Should Know More.**

It's the only personal computer that works the way you do. To learn how you can put Lisa to work, call Apple at 800-662-9238. We'll give you the phone number of the national accounts office or authorized Lisa dealer in your area.



# Specifications

## Display:

- 12 inch screen (measured diagonally).
- Full-screen bit-mapped display
  - 364 lines by 720 dots.
  - up to 40 lines of 132 characters.
- 60 Hz refresh rate.
- Contrast level under software control.
- Contrast-enhancing screen.

## Keyboard:

- Detached, standard typewriter-style.
- N-key rollover.
- Sculptured keytops
  - textured, nonslip, nonglare.
- Numerical keypad with raised dot on 5 key.
- Full ASCII character set, up to 77 keys.
- All keys programmable.
- Smart interface with control-oriented processor.

## Mouse:

- Extremely fast, intuitive cursor positioning.
- Works well on any surface.
- Simple one-button design eliminates confusion and the need to learn commands.

## Disk storage:

- 860K bytes (per drive) formatted storage.
- 1.4M bytes (per drive) unformatted capacity.
- 62.5 tracks/inch.
- 10,000 bits/inch.
- Automatic disk eject.
- Smart interface with 6504 processor.

## Main processor:

- MC68000 32/16-bit CPU
  - 32-bit internal architecture.
  - 16-bit external data path.
  - Seven levels of interrupts.

## Real-time clock:

- Software system on-off control.
- Interval and event timing.
- COPS processor, battery backup.

## Main memory:

- 16K bytes of boot ROM.
- Up to 1M bytes RAM.
- Parity error detection.

## Memory management:

- Permits operating system to relocate segments in memory.
- Provides access controls for block memory.
- Segmentation into 128 variable-length blocks.

## Communications interface:

- Two serial ports
  - SCC controller.
  - programmable.
  - full-function.
- RS-232 with full-duplex channels.

- Full modem control and ring indicator on one channel.
- Baud rates software-programmable.
- One parallel port
  - 8-bit bidirectional.
  - handshake control.

## Audio output:

- Built-in speaker with software-controllable tone generator.

## Expansion board slots:

- Three slots.
- Zero insertion-force connectors.
- Direct connection to system bus.
- DMA capability.
- Memory-mapped I/O.
- Vector interrupt capability.
- Direct connection of power supply:
  - digital ground.
  - +5V, –5V, +12V, –12V.
  - allows up to 10W total (maximum rating) for all three cards.
  - +5V standby (at 58 mA) per board.

## Weight and dimensions:

- Computer console:
  - Weight: 48 lb. (22 kg).
  - Height: 13.8 in. (350 mm).
  - Width: 18.7 in. (475 mm).
  - Depth: 15.2 in. (388 mm) [16 in. (403 mm) with keyboard under front].
- Keyboard:
  - Weight: 4 lb. (1.8 kg).
  - Height: 2.7 in. (68 mm).
  - Width: 18.7 in. (475 mm).
  - Depth: 6.5 in. (165 mm).

## Power requirements:

- 115 or 230 V. AC.
- 48 to 68 Hz.
- 270 W (maximum).

## Environmental requirements:

- Ambient temperature: 40°–108° F (5°–42° C).
- Relative humidity: 15–80%, noncondensing.

## Applications:

- LisaCalc (spreadsheet modeling), LisaList (list management), LisaProject (project scheduling), LisaWrite (word processing), LisaGraph (business graphics), LisaDraw (graphics editor), LisaTerminal (terminal emulation).

## Languages and development environment:

- BASIC, Pascal, COBOL, Lisa Editor, Assembler, Linker, Debugger, and a wide range of utilities.

## Communications:

- 3270 BSC.

## System expansion:

- Apple Dot Matrix Printer, Apple Daisy Wheel Printer, Apple ProFile (5MB hard-disk storage device), Modem, 2-port parallel card, and AppleNet Local Area Network (Ethernet connections available for Apple products).

**Apple/U.S.**  
Apple Computer, Inc.  
20525 Mariani Avenue  
Cupertino, California 95014  
(408) 996-1010  
TLX 171-576

**Apple/U.K.**  
Apple Computer Ltd.  
Finway Road  
Hemel Hempstead  
Herts HP2 7PS  
England  
011-44-442-48151  
TLX 851-825554

**Apple/Europe**  
Apple Computer International  
5/7 rue de Chartres  
92200 Neuilly-sur-Seine  
France  
011-33-1-624-21-13  
TLX 842-630296

**Apple/Canada**  
Apple Canada  
875 Don Mills Road  
Don Mills  
Ontario, Canada M3C 1V9  
(416) 444-2531  
800-268-7637  
TLX 06-986561

Scanned by

Charles Eicher

<http://weblog.ceicher.com>

[ceicher@mac.com](mailto:ceicher@mac.com)