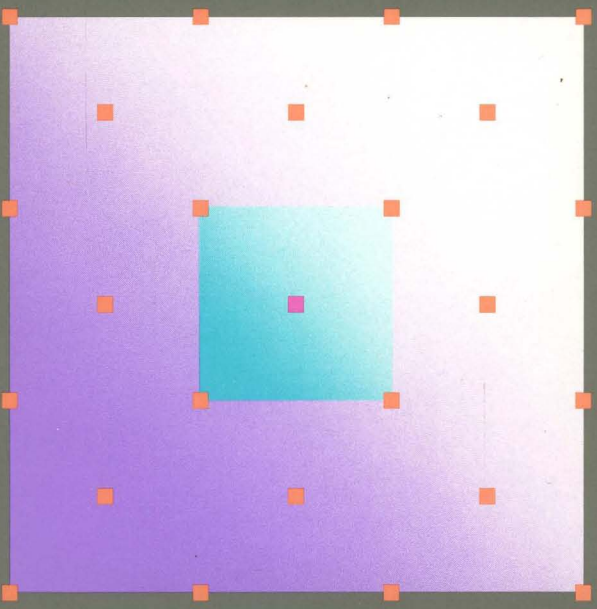
Lisa

Sales Marketing Binder



January 25, 1984

To: **All Apple Sales Offices**
All Rep Firm Offices

Here is the new version of the Lisa Sales Binder. It has been updated to include information regarding Networking, Lisa™ 2, Macintosh™, and the entire Apple 32 product family. Please remove the old version and replace with the enclosed current version.

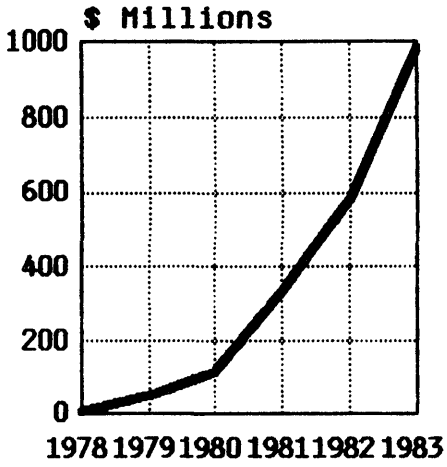
This is being sent to the Apple Sales Offices and Rep Firms, but not the Personal Office Systems Dealers. We are going to handle the update the same way we distributed the original - through the reps. It is up to you, rep salespeople, to take these updates to your Personal Office System Dealers and make sure they are familiar with the new information.

SALES COMMUNICATIONS

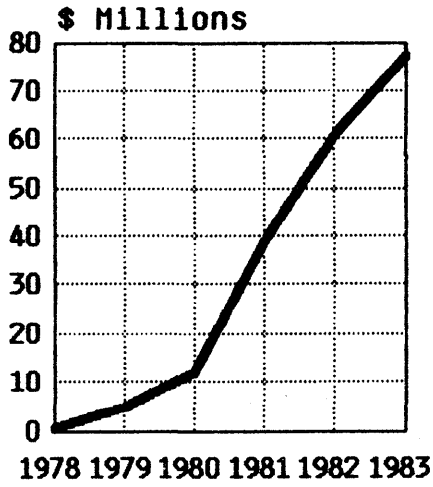
Table of Contents

Apple Corporate Story

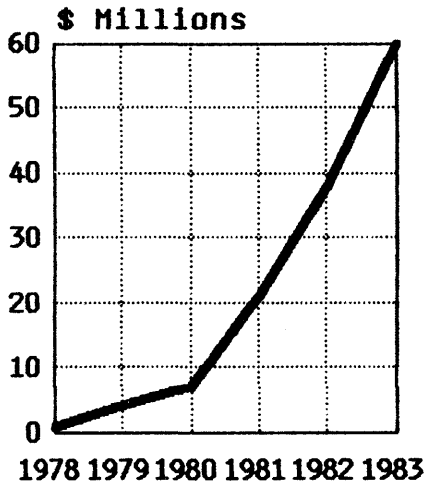
- 1976 - Jobs & Wozniak designed the Apple I in Jobs' parents' garage.
- 1977 - The Apple II starts the personal computer revolution.
- 1982 - At only 5 years old, Apple joins the Fortune 500 on sales of $600 M.
- 1983 - Lisa Technology changes the way people use personal computers.
- 1984 - Macintosh is expected to be the next industry standard.



Sales



Profit



R & D

Apple Computer founders, Steve Jobs and Steve Wozniak, first met when they were in their early twenties, soon discovering they shared not just a fascination with computers, but with an entirely new concept - the personal computer.

In 1975 they co-designed what would later be dubbed the "Apple I", an easy-to-use, single-board personal computer, and the forerunner of more powerful Apple systems to come.

The young inventors spent six months assembling the prototype in Jobs' parents' garage, attracting nearly 50 advanced orders. Their commitment intensified when, forced to raise seed money, Jobs and Wozniak sold their most valuable possessions, a programmable calculator and a Volkswagen bus.

Return on their investment came faster than anticipated, with Apple I sales quickly reaching a respectable $200,000. Apple Computer was in business!

In 1976 A.C."Mike" Markkula, Jr. joined Jobs and Wozniak. The three incorporated the company as Apple Computer in January, 1977, recruiting the finest available talent from computer and semiconductor companies throughout the US. Four months later, Apple literally revolutionized the computer industry by introducing the first fully assembled, programmable personal computer, the Apple II.

Recognizing the growing need for a personal computer system able to handle highly sophisticated business and professional applications, Apple introduced the Apple /// in 1980. Its powerful microprocessors and large memory capacity attracted the interest of a wide range of professionals, enhancing Apple's position in the business, scientific, and industrial marketplaces.

With manufacturing, service, and distribution centers worldwide, the company had - in the span of just three years - grown international in size and scope. Apple became a publicly owned company in December, 1980, in what The Wall Street Journal called "the (stock) offering of the decade."

In 1982, only six years after Wozniak and Jobs demonstrated the first Apple I for friends, Apple's sales skyrocketed to an astronomical $600 million, catapulting the company to the ranks of America's FORTUNE 500. No corporation in the history of American business has grown so big, so fast.

In January 1983, Apple introduced its most innovative personal computer to date and the first member of the Apple 32 product family, the Lisa™ Personal Office System. Utilizing new "Lisa Technology", the Lisa is controlled by a palm-size desktop device called a "mouse". By simply using the mouse to point at familiar symbols appearing on the computer screen, you can direct the Lisa to perform a wide variety of sophisticated tasks - without ever having to learn computer commands.

In January, 1984 Apple introduced Macintosh, the next member of the Apple 32 family. It utilizes Lisa technology but with the emphasis on low cost and transportability. It is expected to be the third industry standard following the Apple II and the IBM PC.

As the innovator in the personal computer industry it brought to life, Apple remains committed to its founders' original vision: to place personal computer power well within everyone's reach.

You can profit from Lisa Technology if you:

- Manage people, projects, and/or time.

- Analyze information and make decisions.

- Need ready access to information.

- Share information.

And most importantly,

- Must communicate ideas convincingly.

With LisaTechnology, you have the only complete personal computer solution for all of your job.

Benefits of Lisa Technology

Do your work faster

Easier to learn → do useful work sooner

Easier to use → do useful work faster

Do your work better

Concentrate on problems, not the computer

→ better analysis

High quality graphics

→ more effective communications

Do more things

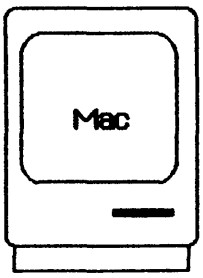
Unique applications

→ new ways to analyze, communicate infomation

Applications that work together

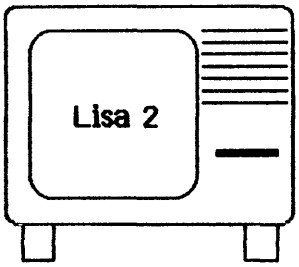
→ combine infomation for better analysis

Apple 32 Customers



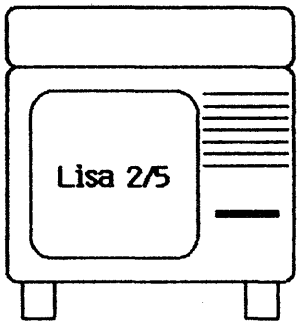
Macintosh Customers:

- Managers and professionals with typical computing needs, particularly those new to personal computers.
- Students, partioularly those in oollege.
- Secretaries with modest word-processing needs, but requiring a system compatible with manager's system.
- Businesspeople also looking for a home computer.



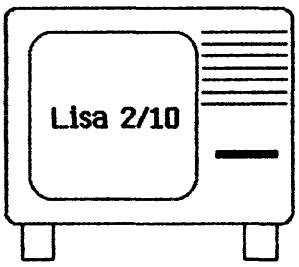
Lisa 2 Customers:

- Managers and professionals with more intense computing needs, such as larger spreadnseet or databases.
- Small businesses and developers requiring a computer with a very large memory.
- Business people who anticipate needing a hard-disk drive in the future.



Lisa 2/5 Customers:

- Business people needing a low-cost hard-disk system to run Macintosh or Lisa Office System software.
- Small businesses requiring a single-user system.
- Pascal, BASIC-Plus, and COBOL developers satisfied with a 5 MB hard disk drive.



Lisa 2/10 Customers:

- Professionals requiring extra storage capacity (for very large databases, for example), or using the system very often and thus requiring top performance and integration.
- Small businesses requiring a multiuser system with average disk capacity or a single-user system with large disk requirements.
- Developers requiring a 10-MB hard-disk drive.

Lisa Product Description

Lisa Technology = High Technology at low cost.

- 32 Bits - for larger memory and faster processing.

- Lisa Technology - The most effective way to operate a computer.

- Desktop Manager - You already know how to use it.

- Software Integration - The only complete set of personal computer applications.

- Unsurpassed Printing - Communicate your ideas convincingly.

- Low Cost - To be useful, it must be affordable.

The Lisa solution costs no more than an ordinary PC solution!

Lisa/Macintosh Positioning

Buy a Macintosh when you want:

- Lisa Technology
- a low price
- transportability

Buy a Lisa when you want:

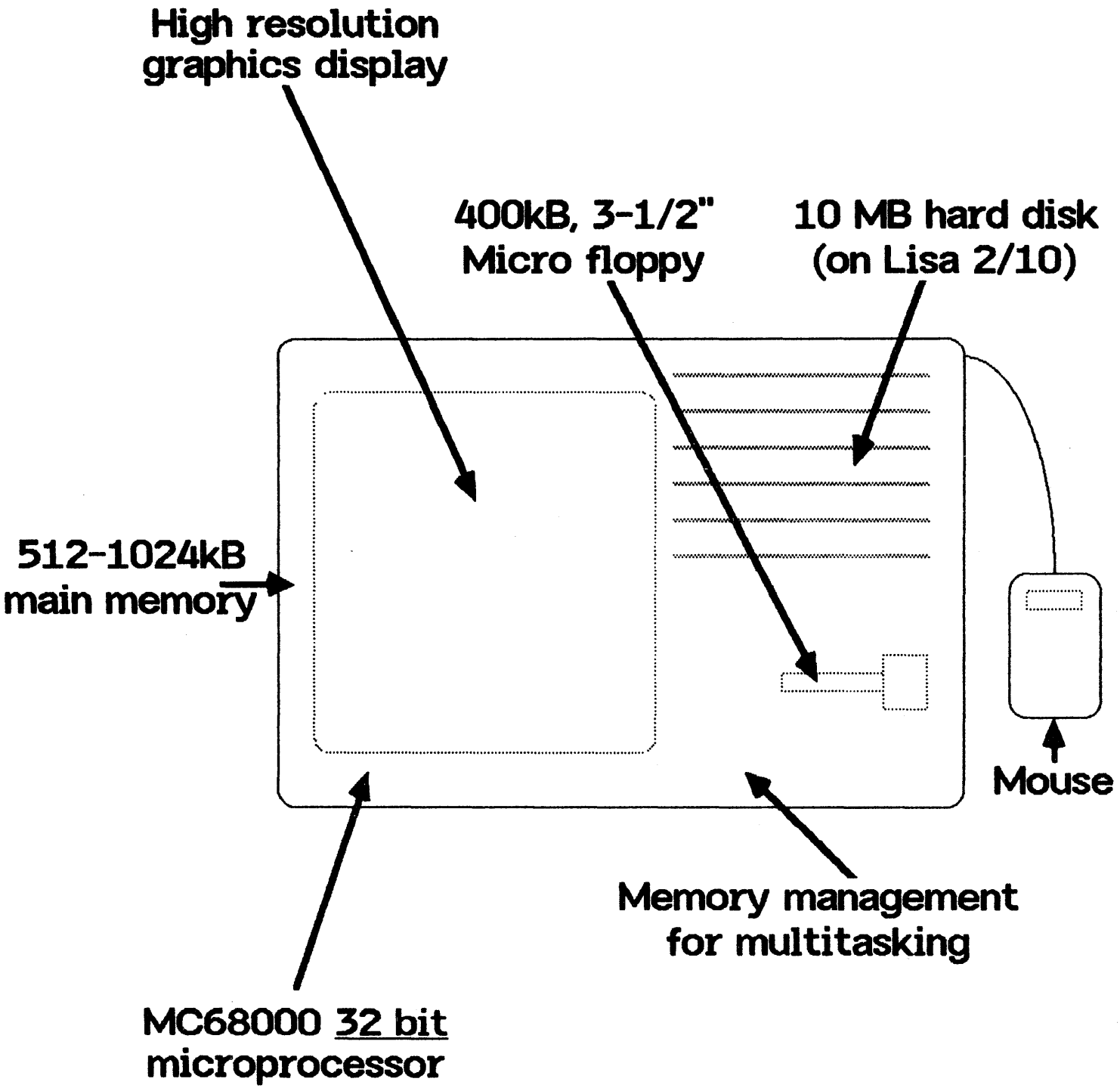
- to solve large problems that require the Lisa's one megabyte of memory.
- to do several things at once and need the Lisa's ability to display multiple windows.
- a choice of operating systems and the different applications that are available with each one.
- a variety of peripherals only available on the Lisa because of the built-in ports and expansion slots.

Hardware Overview

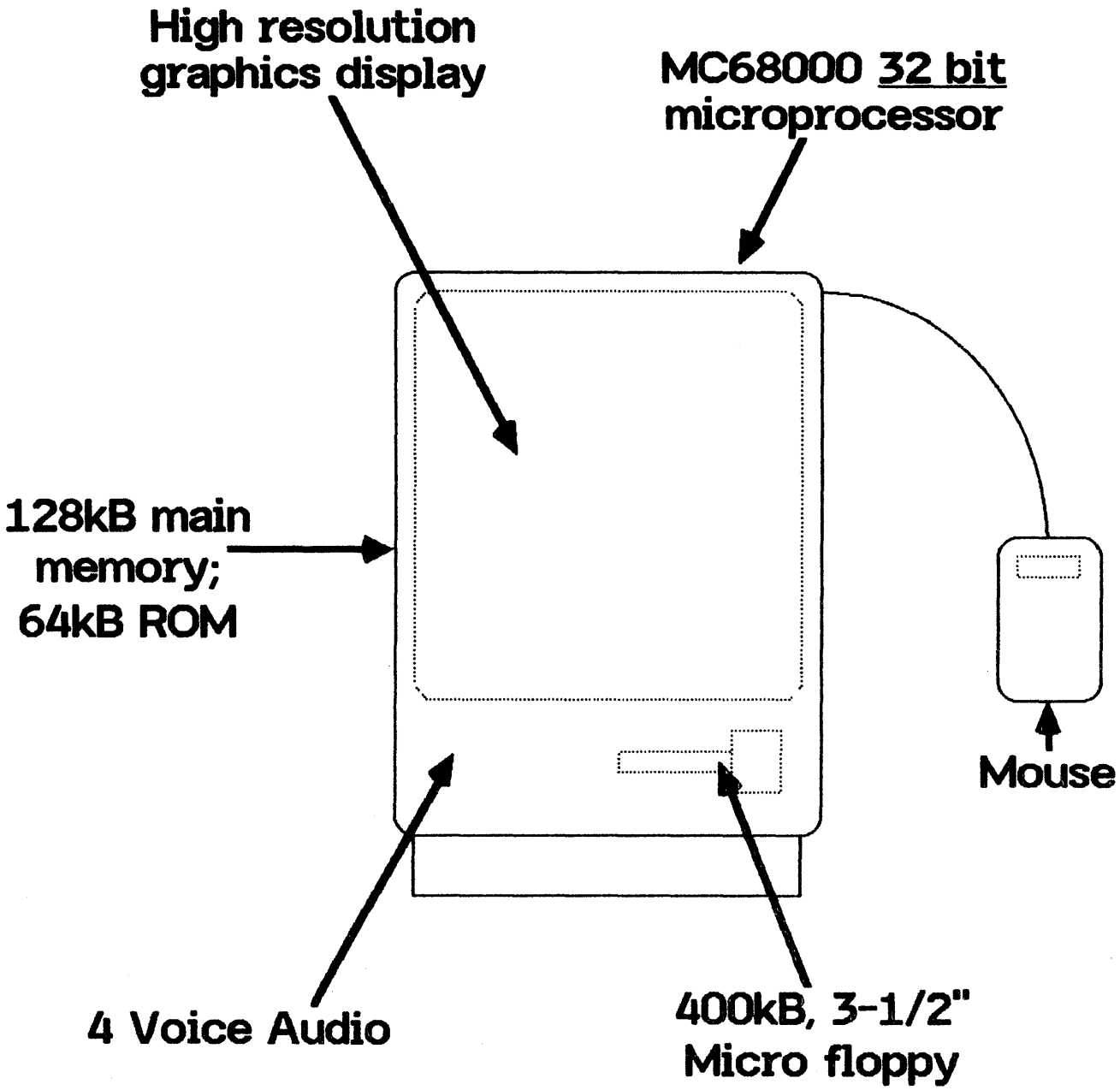
The Lisa hardware uses the latest technology to provide a personal computer solution with unmatched power. It is a wise investment because of:

- The MC68000. The CPU has a 32-bit design which allows it to manipulate complex information faster than 8 or 16-bit processors.
- Memory capacity. The Lisa has up to a full megabyte of memory to support large amounts of information (e.g. spreadsheets) and many applications running simultaneously.
- Memory management. Special electronics support for multitasking lets you work on several documents at once and do background printing and datacomm simultaneously.
- Monitor. The Lisa uses a high resolution graphics display to show detailed graphics as well as different styles of text.
- Mouse. One easily controls the Lisa by pointing with the mouse to menus and other objects on the screen. Users are not tied to the keyboard for typing in commands

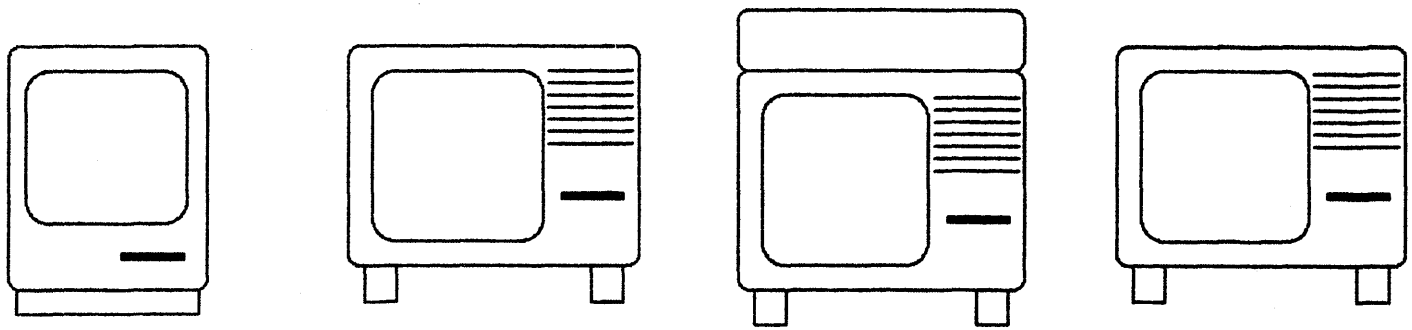
Hardware Overview



Macintosh Hardware Overview



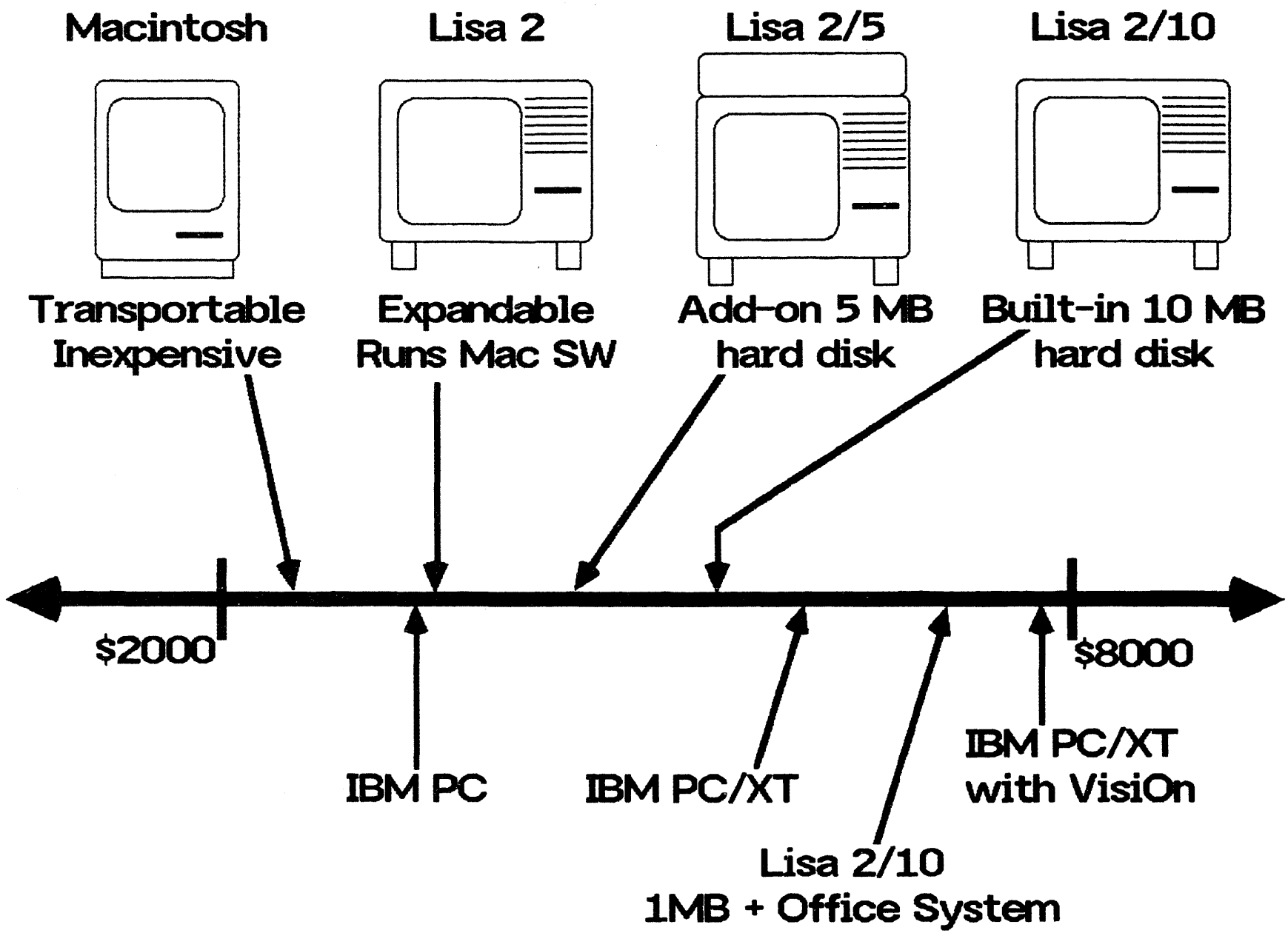
Apple 32 Product Family



	Macintosh	Lisa 2	Lisa 2/5	Lisa 2/10
Price *	$2495	$3495	$4495	$5495
Power	32-bit	32-bit	32-bit	32-bit
Memory	128kB	512kB	512kB	512kB
Disks - Floppy	400 kB	400 kB	400 kB	400 kB
Hard	none	optional	5 MB	10 MB
Software	Mac	← Mac, Lisa, Unix, M/S DOS →		
OS	Single Application	Multi-application/multi-window		
Transportable	Yes	No	No	No
Expandability	DMP,modem	← DMP, DWP, modem up to 1MB memory, large hard disk →		

* Suggested retail price

Apple 32 Product Family



All prices based on suggested retail price; competitive prices based on similarly configured systems.

Compatibility

- The Macintosh and future Apple products are leveraging off the 200 person-years we invested in Lisa Technology.

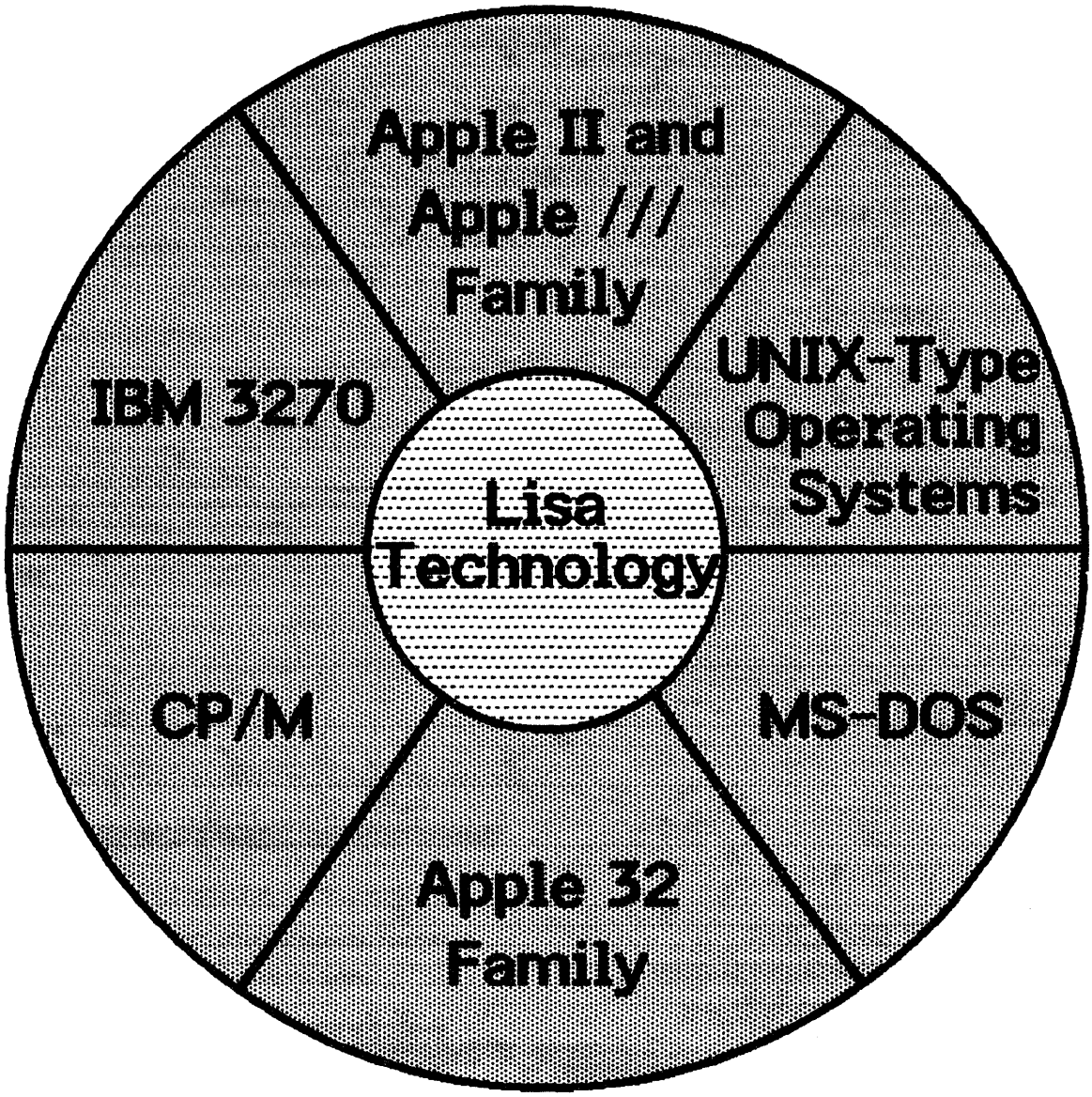
- Macintosh software will run on the Lisa.

- The Lisa is a revolutionary new architecture optimized for ease of use and integration. However, it is still possible to transfer text files between Apple IIs, Apple ///s, and Lisas.

- Apple has in the past supported significant standards in the industry.
  - CP/M-80 for the Apple II+, //e, and ///;
  - Unix-type operating systems on the Lisa;
  - Industry-standard terminal communications protocols for all Apple products;
  - IEEE numerics standards for Lisa

- Apple will continue to be compatible with important standards.
  - MS-DOS will be available on the Lisa in 1984.
  - 3270 emulation is currently available.

Lisa Compatibility



Integration

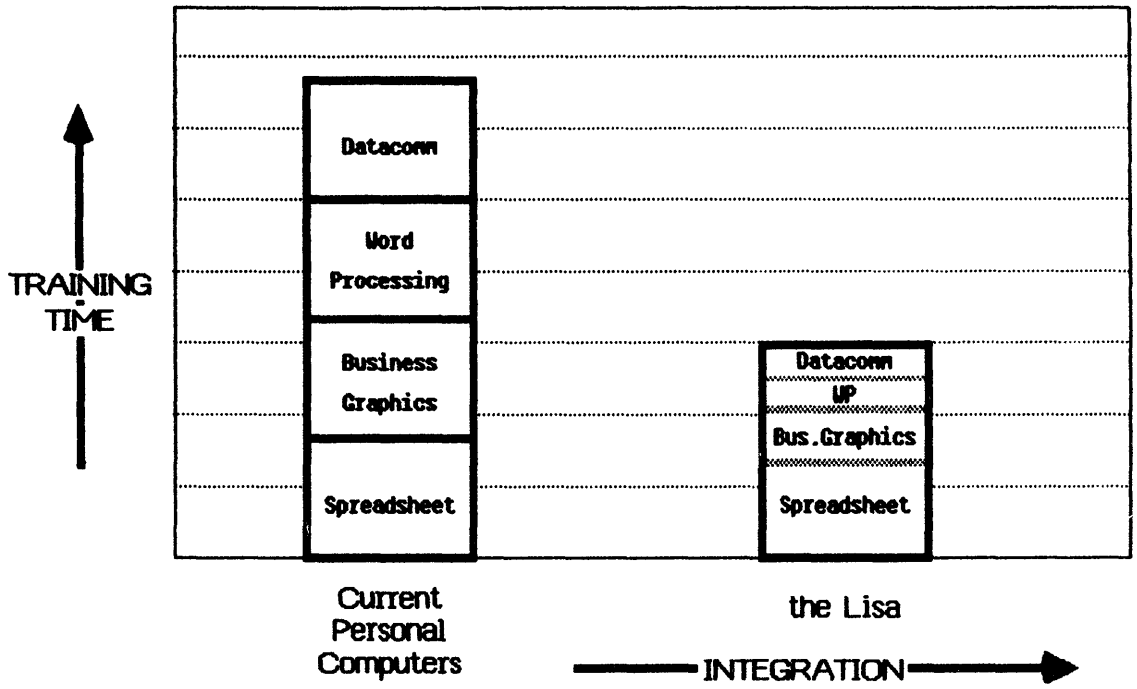
Because of the Lisa's integration, it is the only complete set of personal computer applications.

- Reduce training time dramatically with an integrated user interface. Users save hundreds of hours when learning many computer applications.
  - Common functions across all the applications.
  - Because operations are always done the same way, learning one application means you have learned the basics for the next.

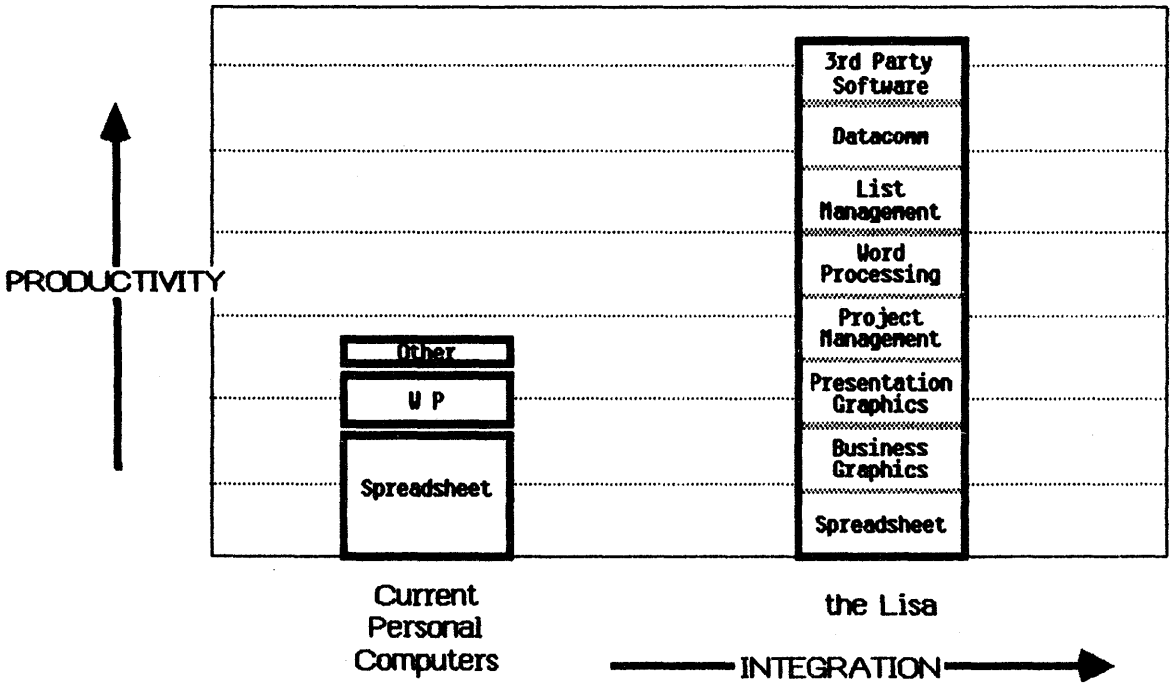
- Maintain higher productivity through the most integrated personal computer.
  - Have many windows of varying applications on the screen simultaneously and move back and forth between them quickly.
  - Never retype data again: just "cut and paste" between the windows in 4 quick steps.

Integration

Reduce Training Time



Maintain Higher Productivity



LisaDraw

LisaDraw is unique among personal computer solutions and is only possible with Lisa Technology.

- LisaDraw allows you to graphically represent concepts that would be impossible to describe with words alone.

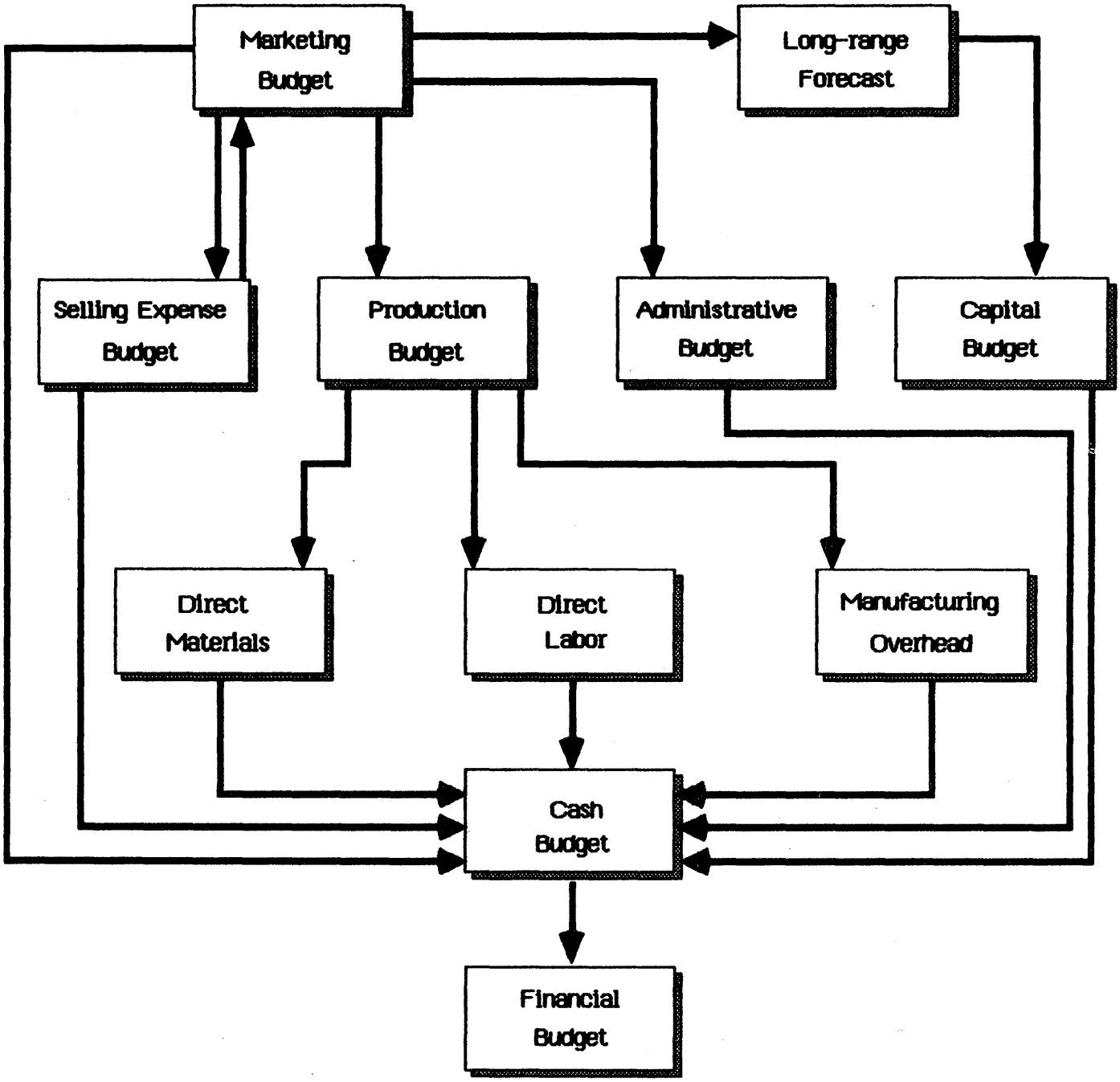
- LisaDraw stimulates creativity by providing easy-to-use tools including many text styles, line types, shapes, shades, scaling, grids, rulers . . .

- Printing is a feature, not an after thought.
  - Drawings can be as large as 32 square feet.
  - Avoid having to print several drafts because what you see on the screen is exactly what will be printed.

- Use LisaDraw to enhance information from LisaGraph and LisaProject so you can present your facts in the most effective way.

- LisaDraw helped us create most of the graphics you see in this binder.

Imagine trying to explain this process with mere words! LisaDraw makes it easy!

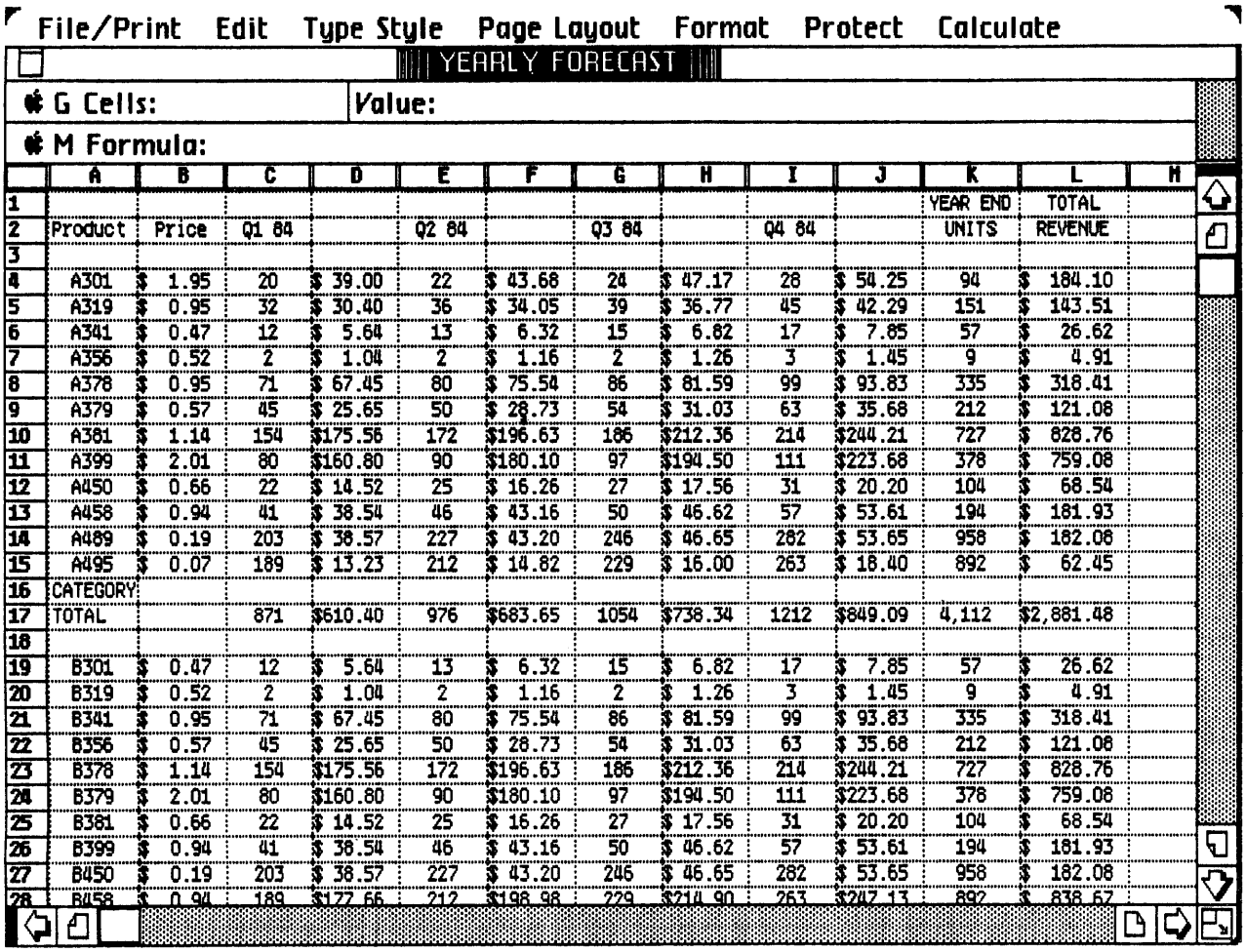


LisaCalc

LisaCalc goes beyond the traditional spreadsheet solution by adding value in these key ways:

- Size - Solve problems up to five times larger than other spreadsheets.
- Display
  - Display multiple documents simultaneously.
  - View up to 28 rows and 13 columns vs 10 rows and 9 columns on competitive systems.
- Integration - the LisaCalc results can easily be moved into LisaWrite or LisaGraph for better communication of the information.
- Accuracy
  - LisaCalc always gets the correct answer.
  - 16 digit precision ensures your results.
- Unique Features - Only in LisaCalc
  - Display and print formulas as well as values.
  - Functions such as Annuity, Compound, Net Present Value, Search, and calendar arithmetic.
  - Print in a variety of typestyles.

View 28 Rows and 13 Columns



File/Print Edit Type Style Page Layout Format Protect Calculate

YEARLY FORECAST

G Cells: Value:

M Formula:

	A	B	C	D	E	F	G	H	I	J	K	L	H
1											YEAR END	TOTAL	
2	Product	Price	Q1 84		Q2 84		Q3 84		Q4 84		UNITS	REVENUE	
3													
4	A301	$ 1.95	20	$ 39.00	22	$ 43.68	24	$ 47.17	28	$ 54.25	94	$ 184.10	
5	A319	$ 0.95	32	$ 30.40	36	$ 34.05	39	$ 36.77	45	$ 42.29	151	$ 143.51	
6	A341	$ 0.47	12	$ 5.64	13	$ 6.32	15	$ 6.82	17	$ 7.85	57	$ 26.62	
7	A356	$ 0.52	2	$ 1.04	2	$ 1.16	2	$ 1.26	3	$ 1.45	9	$ 4.91	
8	A378	$ 0.95	71	$ 67.45	80	$ 75.54	86	$ 81.59	99	$ 93.83	335	$ 318.41	
9	A379	$ 0.57	45	$ 25.65	50	$ 28.73	54	$ 31.03	63	$ 35.68	212	$ 121.08	
10	A381	$ 1.14	154	$175.56	172	$196.63	186	$212.36	214	$244.21	727	$ 828.76	
11	A399	$ 2.01	80	$160.80	90	$180.10	97	$194.50	111	$223.68	378	$ 759.08	
12	A450	$ 0.66	22	$ 14.52	25	$ 16.26	27	$ 17.56	31	$ 20.20	104	$ 68.54	
13	A458	$ 0.94	41	$ 38.54	46	$ 43.16	50	$ 46.62	57	$ 53.61	194	$ 181.93	
14	A489	$ 0.19	203	$ 38.57	227	$ 43.20	246	$ 46.65	282	$ 53.65	958	$ 182.08	
15	A495	$ 0.07	189	$ 13.23	212	$ 14.82	229	$ 16.00	263	$ 18.40	892	$ 62.45	
16	CATEGORY												
17	TOTAL		871	$610.40	976	$683.65	1054	$738.34	1212	$849.09	4,112	$2,881.48	
18													
19	B301	$ 0.47	12	$ 5.64	13	$ 6.32	15	$ 6.82	17	$ 7.85	57	$ 26.62	
20	B319	$ 0.52	2	$ 1.04	2	$ 1.16	2	$ 1.26	3	$ 1.45	9	$ 4.91	
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24	B379	$ 2.01	80	$160.80	90	$180.10	97	$194.50	111	$223.68	378	$ 759.08	
25	B381	$ 0.66	22	$ 14.52	25	$ 16.26	27	$ 17.56	31	$ 20.20	104	$ 68.54	
26	B399	$ 0.94	41	$ 38.54	46	$ 43.16	50	$ 46.62	57	$ 53.61	194	$ 181.93	
27	B450	$ 0.19	203	$ 38.57	227	$ 43.20	246	$ 46.65	282	$ 53.65	958	$ 182.08	
28	B458	$ 0.94	189	$177.66	212	$198.98	229	$214.90	263	$247.13	892	$ 838.67	

Print formulas as well as values.

	A	B	C	D	E	F	G	H
1								
2								Excess or
3		Employees	Salaries	Benefits	Expenses	TOTAL	Budget	(Deficit)
4	1Q83	4	(B4*B14)/4= 34.00	C4*D14/100= 11.90	B4*E14*3= 16.80	sum(C4:E4)= 62.70	150.00	G4-F4= 87.30
5	2Q83	B4+2= 6	((B4*B14*(1+C14/100)) +(B5-B4)*B14)/4= 52.70	C5*D14/100= 18.45	B5*E14*3= 25.20	sum(C5:E5)= 96.34	200.00	G5-F5= 103.66
6	3Q83	B5*2= 12	((B5*B14*(1+C14/100)) +(B6-B5)*B14)/4= 104.55	C6*D14/100= 36.59	B6*E14*3= 50.40	sum(C6:E6)= 191.54	275.00	G6-F6= 83.46
7	4Q83	Round(B6*1 .25)= 15	((B6*B14*(1+C14/100)) +(B7-B6)*B14)/4= 132.60	C7*D14/100= 46.41	B7*E14*3= 63.00	sum(C7:E7)= 242.01	400.00	G7-F7= 157.99
8								
9	TOTAL	B7= 15	sum(C4:C7)= 323.85	sum(D4:D7)= 113.35	sum(E4:E7)= 155.40	sum(F4:F7)= 592.60	sum(G4:G7)= 1,025.00	sum(H4:H7)= 432.40
10								

LisaList

LisaList brings increased productivity to the management of lists and records through:

- High-speed sorting: sort 100 rows in 3 seconds.
- More flexibility
  - Search for any combination of information using "Query by Example".
  - Sort on any combination of keys.
- LisaList's capacity is unsurpassed in personal computer solutions. Up to 10 megabytes of information can be stored in 100 fields, and each record can be up to 990 characters.
- Create, change, and expand your database easier than ever before possible on personal computers through the use of the graphics mouse interface.
- Generate specialized reports by displaying and printing selected rows and columns in numerous typestyles.
- Your data is more accurate with LisaList's edit checking against user-defined data types.

Query by Example

Employees

Search Specifications

Name	MailStop	Department	Building	Hire Date
L THRU Z		=Engineering	= 4	

Employees

Selected Rows

Name	MailStop	Department	Building	Hire Date
Litani, Gavin	2-B	Engineering	4	7/21/76
Lo, Chris	2-B	Engineering	4	7/24/82
Machado, Ivan	1-D	Engineering	4	3/06/80
Malick, Rob	2-B	Engineering	4	4/09/82
Noguchi, Yo	2-B	Engineering	4	3/15/82
Olsen, Sharon	2-B	Engineering	4	5/18/76
Page, Ralph	2-B	Engineering	4	7/21/82
Peters, Barbara	1-D	Engineering	4	8/01/80
Reed, Rob	1-D	Engineering	4	9/20/82
Tyson, Wayne	1-D	Engineering	4	2/15/79
Weilers, June	1-D	Engineering	4	4/01/79

LisaWrite

LisaWrite helps you take your ideas and translate them into printed words that PEOPLE WILL READ!

- Produce professional quality results.
  - Many type faces and styles.
  - Printing solutions are inexpensive and unique.

- Get final product faster.
  - Display many windows simultaneously
  - Copy and paste between them, including from word processing templates.
  - Consistent user interface leverages familiarity with desktop, windows, and the mouse.

- Integration allows information from LisaCalc and other computers to be pasted into your document.

- Familiar filing and retrieval using file folders and names you create and understand. The Lisa lets you stay more organized.

Lisa

InterOffice Memo

To : Sales Staff

From : VP of Sales

Date : 15 October,1983

Re : SALES MEETING

From the reports that I have heard, you have all been doing a terrific job. I would first like to congratulate you and thank you for making Apple even more successful.

I have scheduled a meeting with all of you to give you some information on how the sales channels are doing and to discuss goals for the next quarter. Please come prepared with your projections as well as any questions or comments you may have for me.

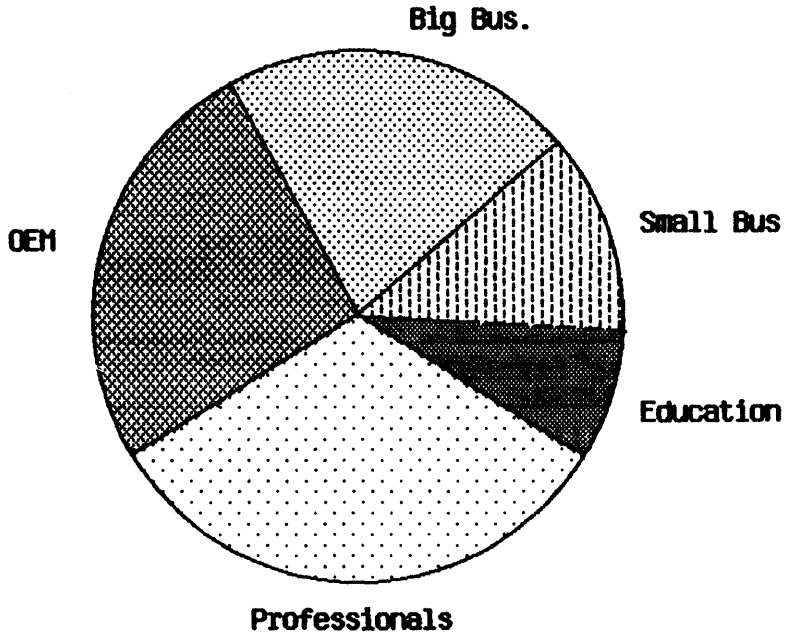
Meeting: 20 Oct, 9:00 am
Big Apple Conference Room
Subject: Quarterly Profits and Projections

LisaGraph

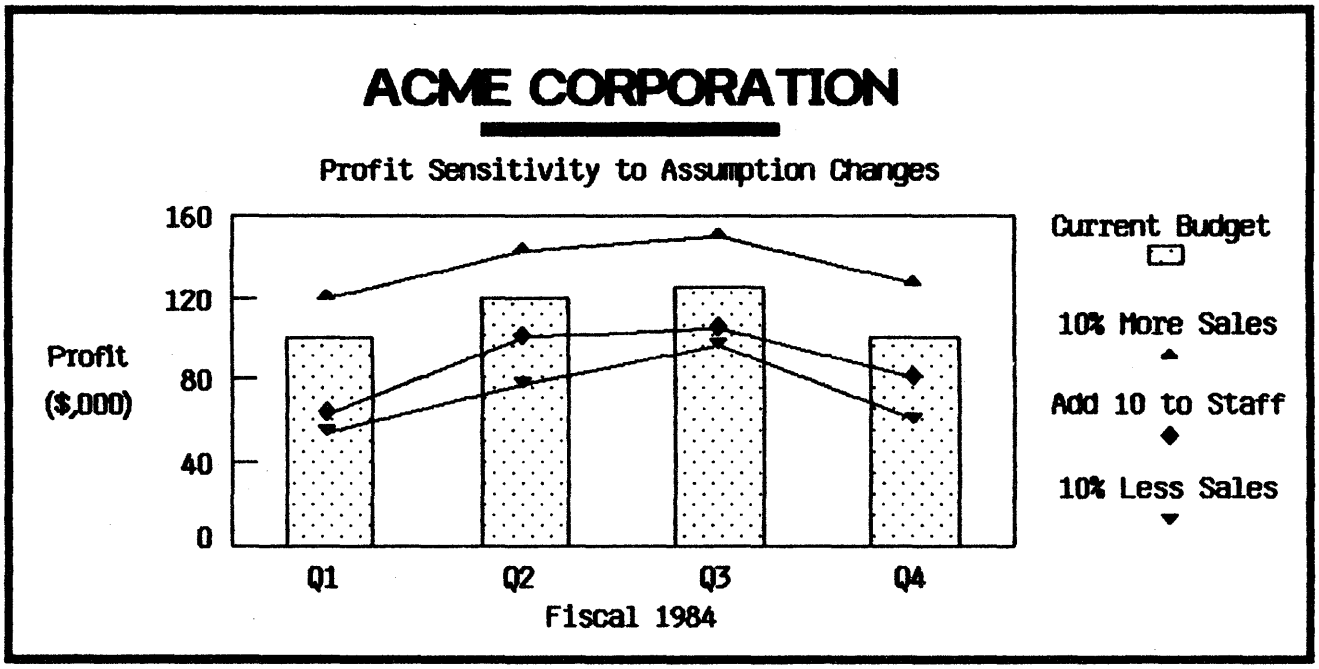
LisaGraph provides the highest quality graphs of any personal computers.

- Variety
  - line graphs
  - bar charts
  - pie charts
  - scattergrams
  - mixed bar/line graph
- Integration
  - LisaGraph can graph information from LisaCalc which saves time having to re-enter numbers.
  - Unlimited customization is allowed by pasting graphs into LisaDraw.
- Flexibility
  - LisaGraph data and graphs are shown on the screen simultaneously for easy and fast editing.
  - The user can ask "What if?" with data; LisaGraph gives a graphic answer instantly.
- Printing - The superior screen resolution is easily captured on paper for use in reports or presentations.

Market Breakdown



Ask "What if....?" Get a graphic answer instantly.



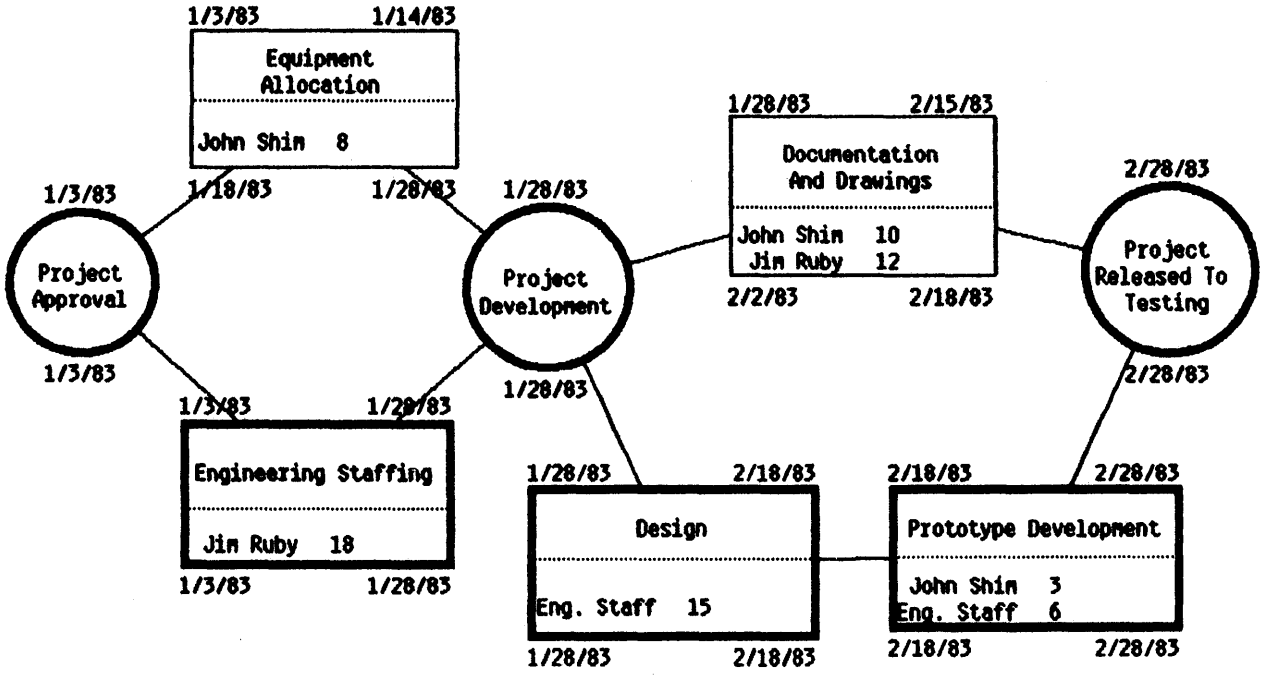
LisaProject

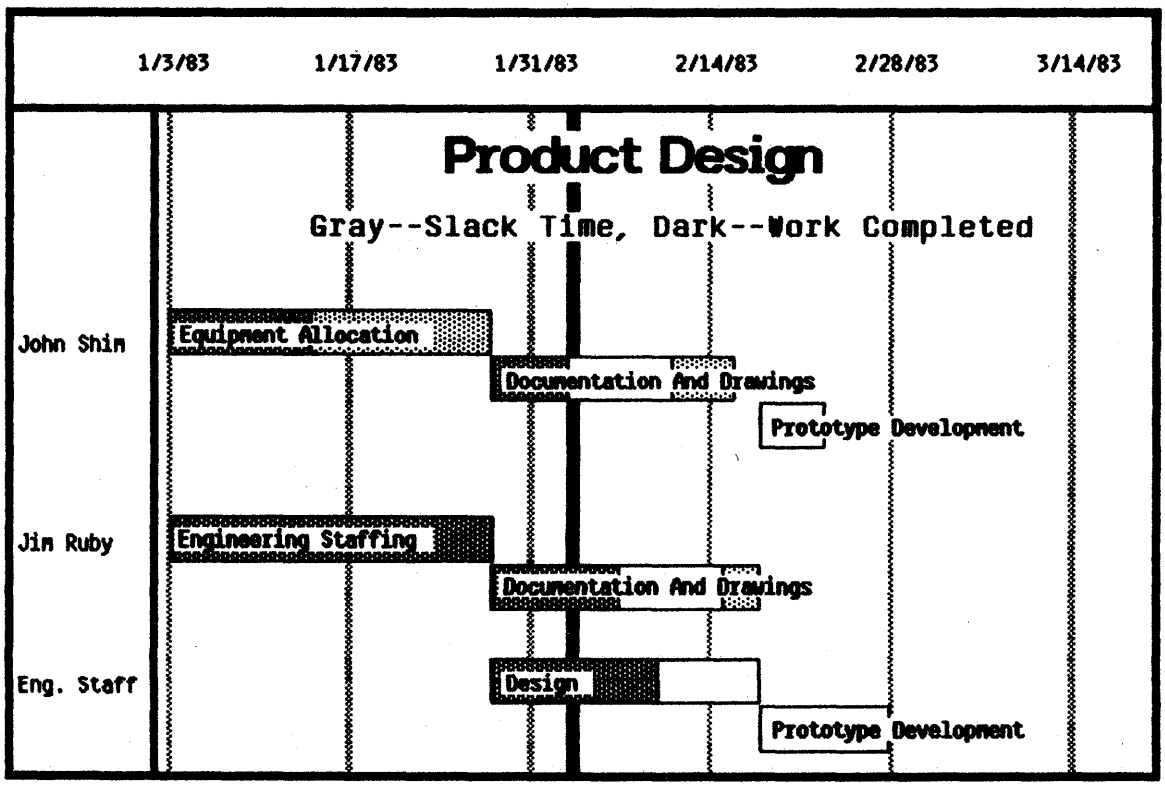
The new decision support tool that is a MUST for successful professionals.

- LisaProject is based on the PERT and CPM, proven project management techniques now available to all managers.
- LisaProject automatically calculates critical tasks flagging those tasks and resources that need special attention.
- Very large projects are effectively managed with LisaProject because it can handle over 1000 tasks.
- LisaProject performs "What If" analysis for people, resources, and tasks, just like spreadsheet products have done for numbers.
- Progress status is tracked graphically with 3 different types of charts. Choose the display which suits your style and need.
- LisaProject information is easily integrated into LisaDraw where it can be enhanced for more effective presentations.

Product Design

Ranger Mfg., Inc.





PRINTING

The superior quality of the final output from any Lisa application reflects the quality of your efforts.

- Apple printers can print graphics and text in a number of typestyles and typefaces.
- The Lisa's "background" printing capability lets you continue working while the Lisa is printing.
- The Lisa always shows you what the final document will look like so you only need to print it once.
- For greater flexibility both printers can print in "landscape" and "portrait" formats with only a few clicks of the mouse.
- The Daisy Wheel Printer supports bold, italics, large characters (1/4 & 1/3 inch), foreign and scientific characters without changing printwheels.
- The printers connect easily, are simple to use, and provide significant value for the dollar.
- Color printing is a technology we are continuing to investigate but we have no products to announce at this time.

Graphics and Typestyles for Every Need !

11 Sizes and Faces ⟶ So what does it buy you ?

Gothic 15 pitch

Elite 12 pitch

Modern 12 pitch

Courier 10 pitch

Modern 10 pitch

Modern proportional spaced

Boldface proportional spaced

Classic 1/4" tall

Modern 1/4" tall

Classic 1/3" tall

Modern 1/3" tall

And Numerous Styles

Regular *Italic*

Underline Bold

Hollow **Shadow**

And *combine* **different** ***styles***

Foreign and special characters:

{ } | \ ` ~ Å å Ä ä á à ã â Ç ç É é è ë ê
í ì î ï Ñ ñ Ö ö ó ò õ ô Ü ü ú ù û ¡ ™ £ ¢
∞ § ¶ ª º ± • ° ∑ ® † ¥ Ø ø ∏ π µ « »
β ∂ ƒ © Δ ¬ ... Æ æ Ω ≈ ∫ ∫ ≤ ≥ ¿ •

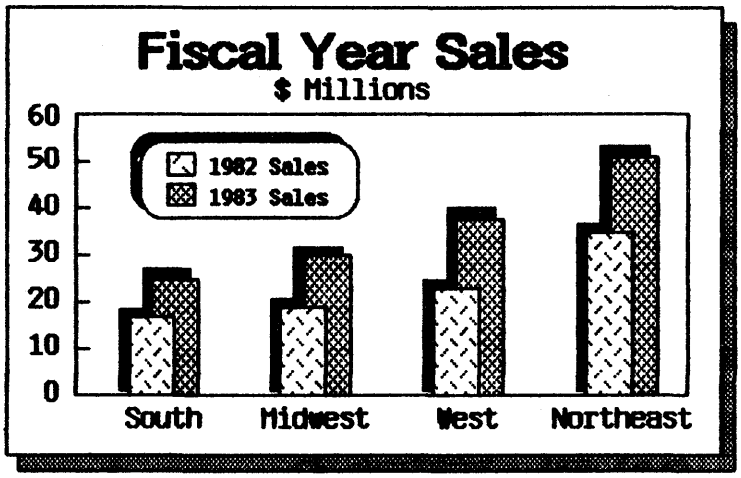
Generate overhead slides for presentations

National Sales Meeting

Agenda

- **Introduction – R. Duncan, VP Sales**
- **Eastern Area – T. Phillips, Eastern GM**
- **Western Area – C. Queen, West GM**

Create more professional-looking reports:



Fit more data into your models or lists:

ACE SPORTS, INC. 1985 FORECAST

	JAN	FEB	MAR	Q1	APR	MAY	JUN
Part No.							
001-231	4400	3200	3400	11000	3200	3300	3750
001-232	340	350	310	1000	360	360	360
001-233	600	600	600	1800	650	650	650
001-234	1240	1275	1325	3840	1400	1350	1350
Subtotal	6580	5425	5635	17640	5610	5660	6110

With the 15 pitch typestyle, you can fit 132 columns of data on a normal 8 1/2" x 11" page. No other personal computer can offer this kind of flexibility. You can even print on 8 1/2" x 14" paper.

Lisa Datacomm Solutions

The Lisa talks to IBM.

Apple Solutions

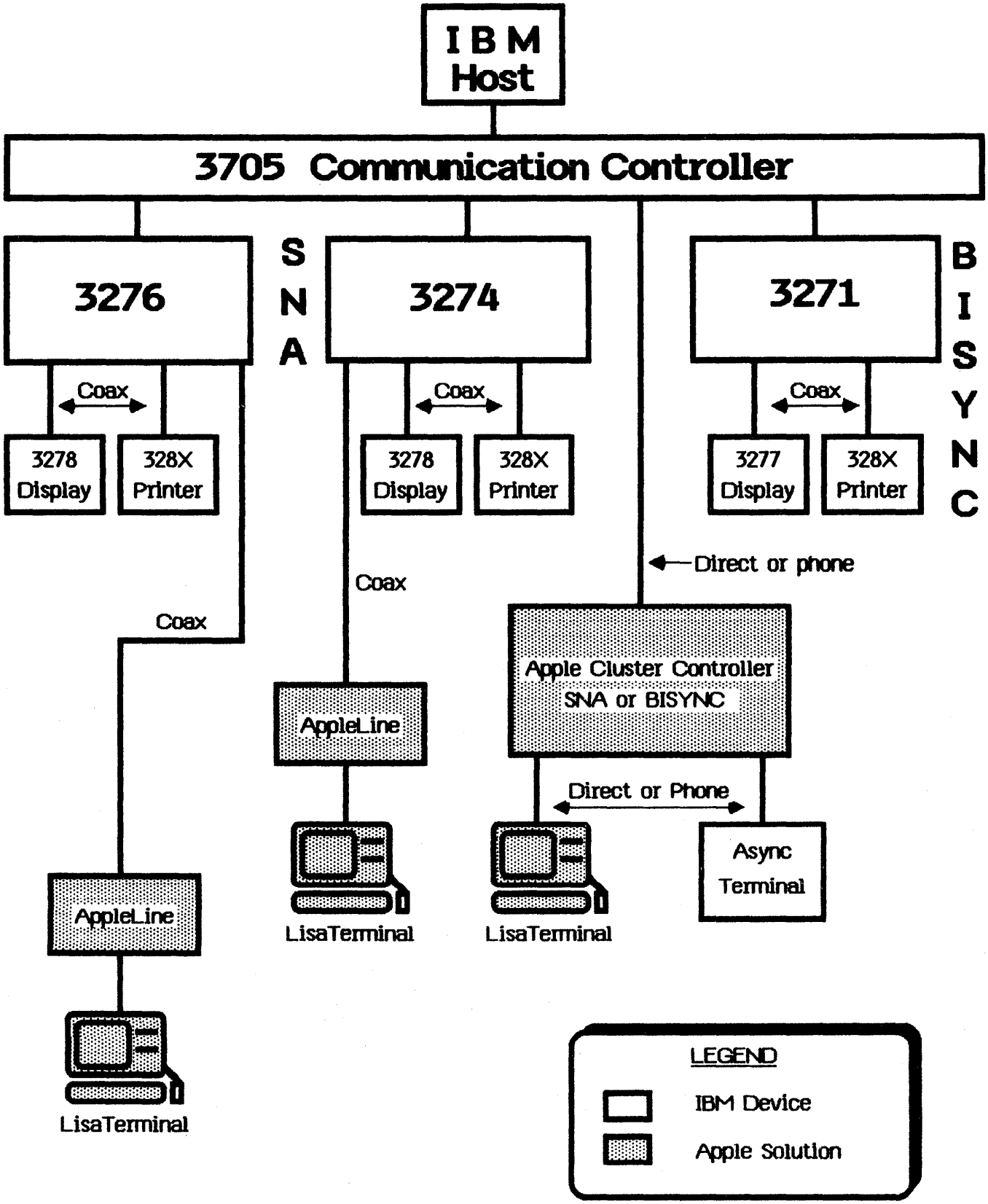
- LisaTerminal is now available, providing VT100, VT52, and ASCII TTY terminal emulation for the Lisa.

- The Apple Cluster Controller allows access to IBM Bisync and SNA environments through LisaTerminal.

- The Lisa Data Communications Developer's Toolkit, allowing developers to write their own datacomm programs, will be available 4th Qtr 1984.

- An external coax solution, called AppleLine, is now available through Apple.

Lisa Solutions for IBM Datacomm



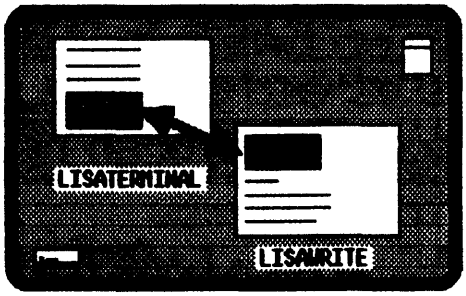
LisaTerminal

LisaTerminal gives you access to more information enabling you to make better decisions.

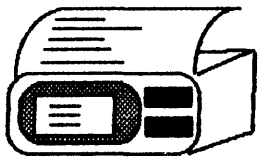
- LisaTerminal is an integrated Lisa application which emulates VT100, VT52, and TTY terminals.
- Moving text between a remote computer and LisaWrite is easy. . . Simply use the same "copy and paste" procedure that applies to all Lisa applications.
- LisaTerminal saves all information, even after it has scrolled off the screen. You can save money in connect time by getting all necessary information at one time and then work with it off-line.
- Use the mouse to set communication parameters. Graphics-mouse technology makes this much easier, especially for the non-technical user, therefore saving time and frustration.
- LisaTerminal works with the Apple Cluster Controller allowing access to IBM BSC and SNA environments.
- Enhanced LisaTerminal, available 2nd QTR 1984, will allow easy transfer of data between other computers and most Lisa applications.

LisaTerminal

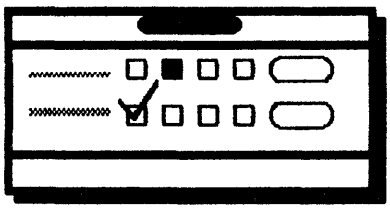
Integration with LisaWrite



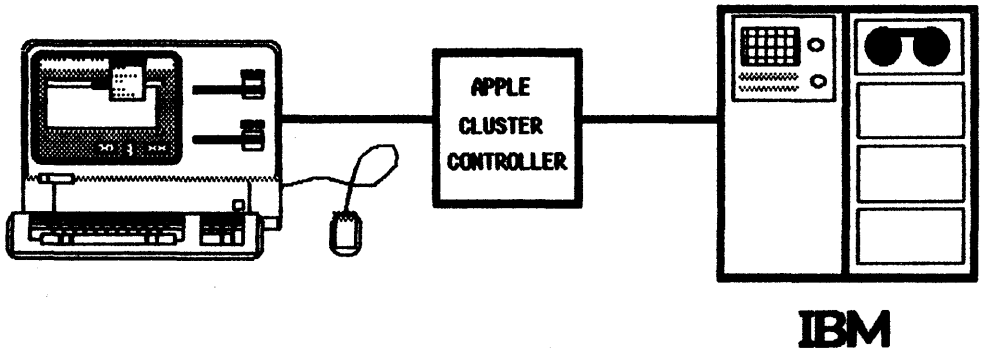
Session Recording



Easy Terminal Set-Up



Works with Apple Cluster Controller and other protocol converters, allowing access to IBM computers.



Networking

General

After reviewing the market, selected customers, and the status of currently installed networks, it is apparent that no clear winner has yet emerged. Accordingly, Apple has modified its approach to networks for two reasons: 1) a growing desire expressed by customers for providing PBX and CBX-type interconnects, and 2) a desire to be more flexible in responding to local area network standards as they emerge.

Two primary technologies are seen to be competing for the local area network (LAN) market: baseband and broadband. The broadband area has not begun to be fully developed as yet and no clear definition of local services has been proposed. The baseband area is the most active currently and the two major competing implementations are: the CSMA/CD (IEEE 802.3) and the token passing ring (IEEE 802.5).

It is clear from our research that the most reasonable position to assume in the short term is one of neutrality; that is, do not implement either type of technology. Apple has chosen to build a peripheral sharing interconnect system that provides gateways to the other technologies. AppleBus is this kind of local interconnect system. As the specifications for other networks become available, Apple will have the opportunity to review them and implement gateways to the entire Apple family line.

For the time being, AppleBus provides the capability to interconnect the Apple 32-bit family capitalizing upon the ease of the user interface while providing a low cost, built-in (not added-on) network solution. This solution also applies to the 6502 product family.

Questions and Answers

Q: Why did you change your strategy?

A: Apple reviewed the current status of the network market and the current vendors and concluded that many of our client companies were waiting for a "standard" to emerge. Without criticizing one technology or the other, we felt it was important to provide connection of our own devices in the short term and not "lock" ourselves into one interconnect strategy or another. A much more neutral strategy provides Apple the opportunity to select which gateways are required. In the second phase of development it allows Apple to build what we believe to be another important interconnect, connection to the PABX.

Q: What is AppleBus?

A: AppleBus is a local peripheral sharing interconnect system. It utilizes hardware already built into the Lisa, Macintosh, and future Apple 32 family products, thereby lowering the cost of interconnection. For the Apple //e, existing low cost hardware (SchoolBus) can be used. Connection to Apple///s will also be provided. The system will consist of approximately sixteen nodes which can be personal computers, printers, and communication and file service devices.

Q: Will other manufacturers be able to connect to AppleBus?

A: Yes. Apple will provide product specifications to other vendors who will build software and hardware products for AppleBus.

Lisa Development Tools

The Lisa offers a more powerful development environment than any other personal computer.

- Many languages are available for easy portability.
  - Pascal - with 3D graphics and mouse interface
  - BASIC-Plus - Compatible with DEC'S BASIC-Plus
  - COBOL - GSA High COBOL with IBM extensions
  - APL - Available from a 3rd Party
  - 'C' (3rd Qtr 84)
  - FORTRAN (4th Qtr 84)

- The Lisa provides a powerful mouse-based environment to create and debug applications.
  - Mouse/Menu/Window-based Text Editor
  - TTY capability to download source code from mainframes and other personal computers.

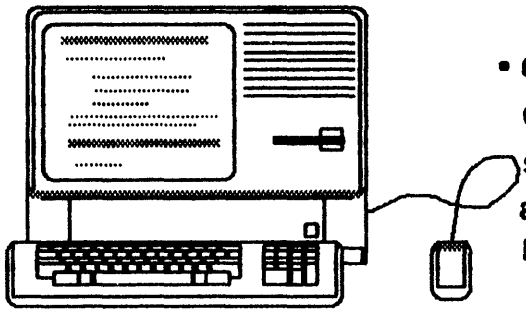
- Anyone can write integrated desktop applications.
  - QuickPort integrates existing applications,written in any of the above languages, into the Desktop.
  - Toolkit/32 enables developers to create fully integrated, 'Lisa-like' applications.

- UniPlus+ and XENIX, which are Unix environments are also available.

Lisa Operating Environments

Lisa Workshop

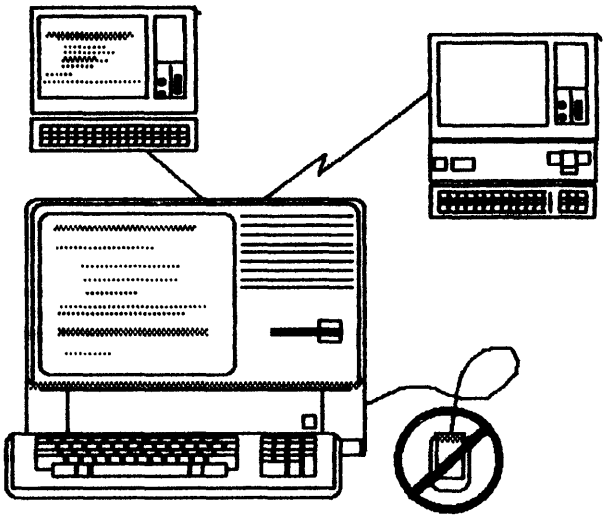
- Program takes over the machine
- Screen is like 24x80 terminal
- Program input from mouse available with Pascal



- Graphics with QuickDraw and speaker control available with Pascal

- MC68000: faster execution
- 1 MB RAM: larger capacity
- 10 MB Hard Disk: faster access

UNIX™ on the Lisa

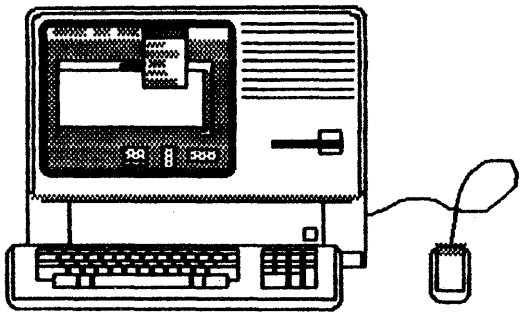


- Screen is like a 24x80 terminal
- Allows for single- or multi-user applications
- A low-cost UNIX implementation
- Large capacity Winchester soon to be available

Lisa Desktop Environment

QuickPort

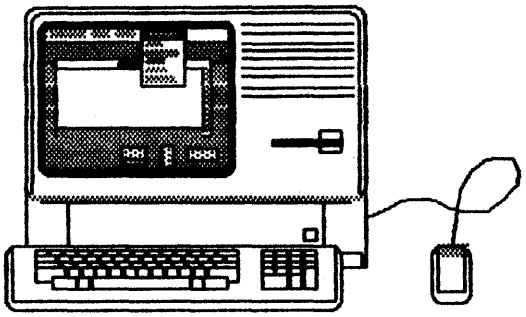
- For Pascal, BASIC-Plus & COBOL programs
- Standard menus for opening, closing, "setup"
- Scrolling and resizing the window available
- Text "pane" operates as an 80x24+ terminal
- Graphics "pane" available for QuickDraw output
- Graphics "pane" may be copied into LisaDraw
- Mouse used only to copy and paste text



- QuickPort allows any program developed in the Workshop to run on the Desktop with <u>limited</u> integration and menu functions

ToolKit/32

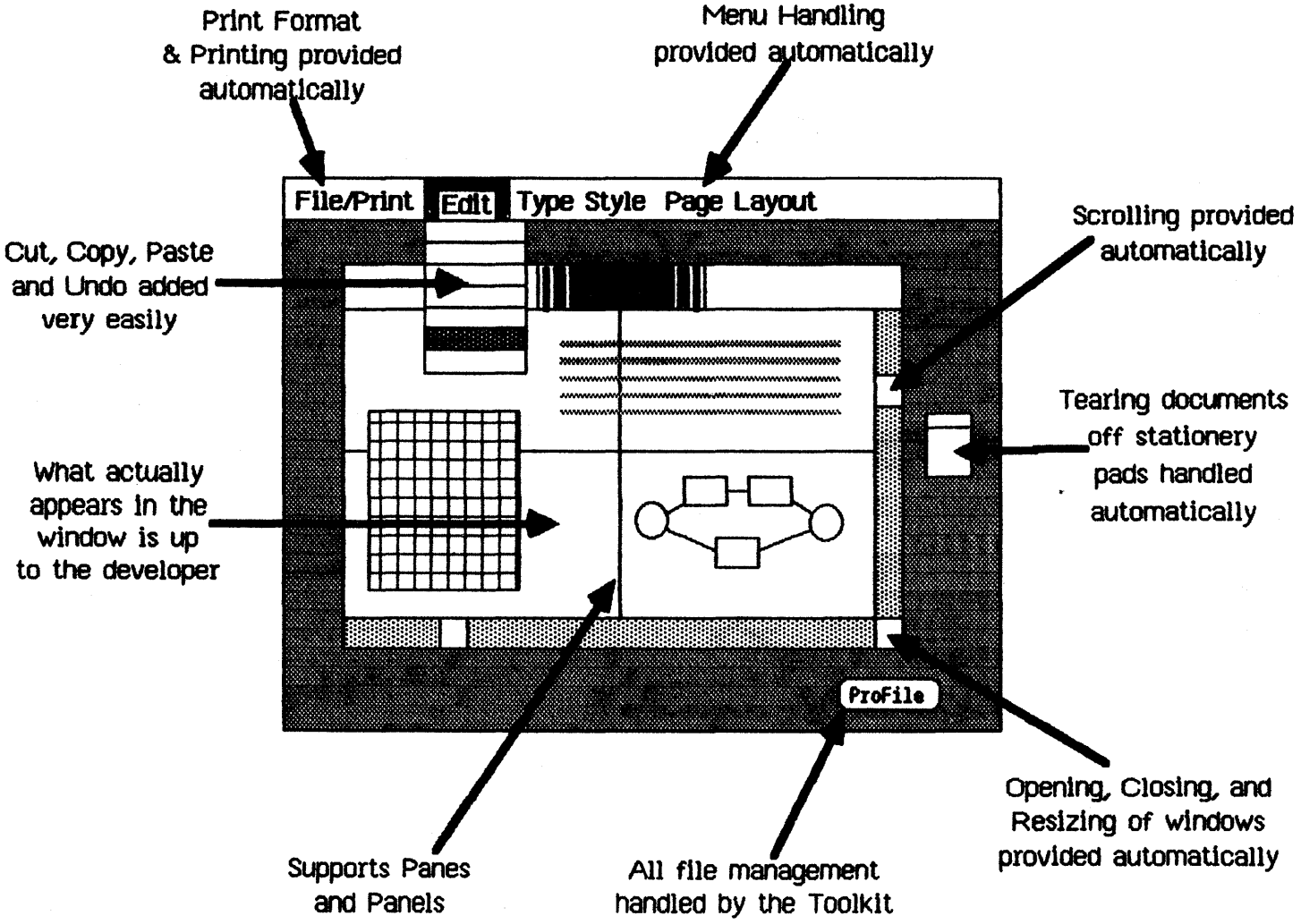
- Mouse and menus may be used by the ToolKit/32 application (e.g. creating graphics)
- Lisa text fonts and printing handled automatically from the menu bar
- Full data integration with other ToolKit/32 applications



- ToolKit/32 brings to the developer the <u>full</u> power and integration of the Lisa system
- Uses the powerful new programming language "Clascal"

Toolkit/32

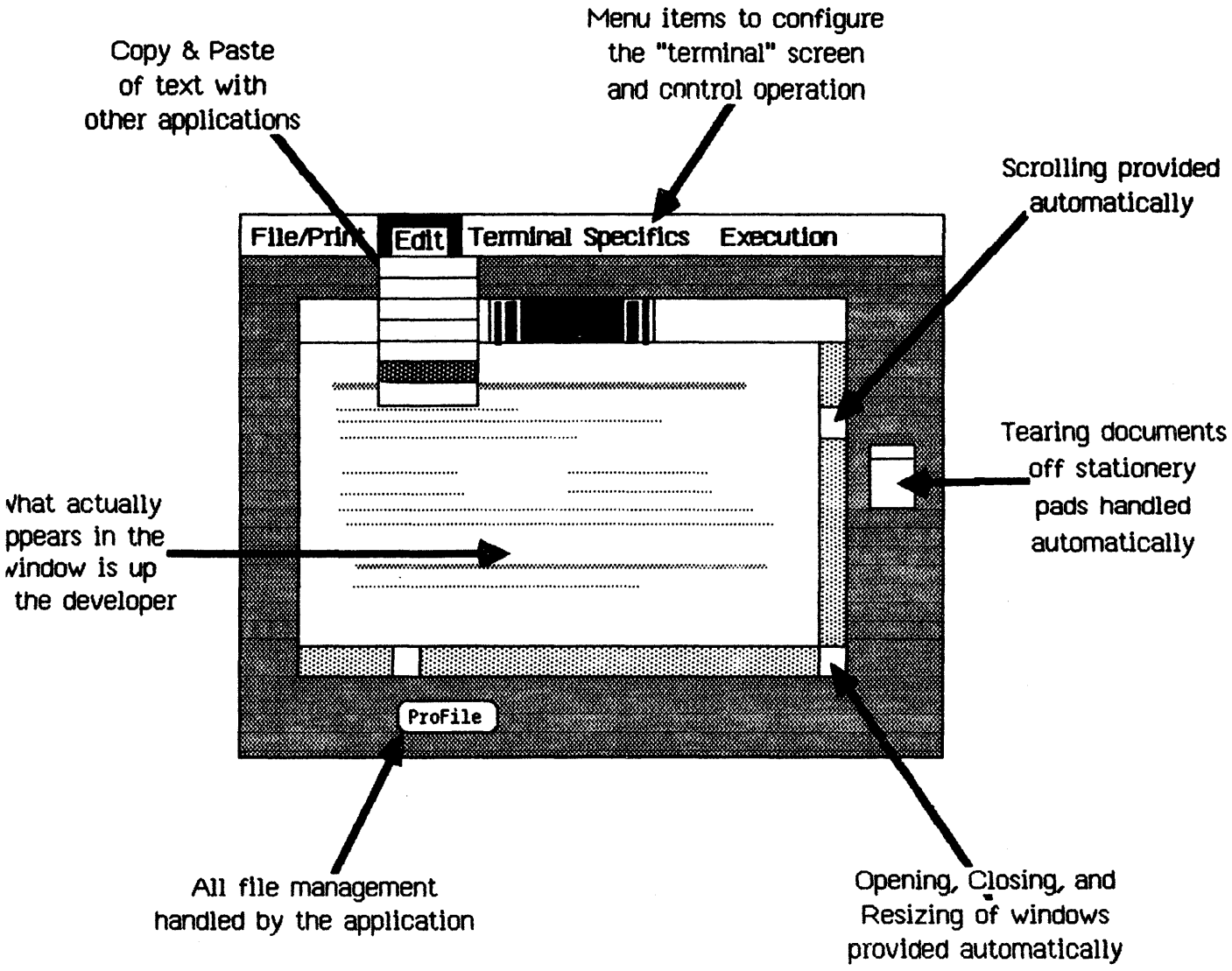
Toolkit/32 is a revolutionary tool for developers. Now anyone can write fully integrated, "Lisa-like" applications utilizing Lisa Technology.



Toolkit/32 handles all but the specific functions of the application itself.

QuickPort

QuickPort is the bridge to Lisa technology. Anyone can port existing applications with minimal effort.



QuickPort supports Lisa COBOL, Pascal and Basic programming languages.

Lisa 3rd Party Program

As of September 1983 there are 155 Developers writing software for the Lisa.

- Word Processing -- 19 developers including:
  Quadratron and Compugraphics

- Database -- 13 developers including:
  Oracle and SPI

- Statistics and Modeling -- 15 developers including:
  Execucom (IFPS), Wadsworth Publishing (Statpro)

- Graphics -- 10 developers including:
  Software Publishing, BPS and Mesa Graphics

- General Accounting -- 13 developers including:
  BPI and Open Systems

- Vertical Markets -- 25 developers including:
  Aardvark (CPA/Tax), Aurora Systems (Banking), Solarsoft (Architecture), Layered Software (Medical), Compu-Law (Legal)

- System Software -- 12 developers including:
  Digital Research, Microsoft and UniSoft

3rd Party Developers

Name	Application	Phone	Environment
AgDisk/Harris Technical Systems	Agricultural accounting	402-476-2811	Workshop, QuickPort
Ashton-Tate	Dbase II	213-204-5570	Unix, QuickPort
Aurora Systems	Banking DB	608-249-5875	QuickPort
BPI Systems	A/R, A/P, General ledger	512-454-7191	Workshop, QuickPort
Business & Professional S/W	Business presentation graphics	617-491-3377	LisaDraw
CMA Micro Computer	Billing/claims	619-365-9718	Workshop
Compugrephic	Photo typesetting	617-658-5600	Office System
Compulaw	Legal time & billing	213-558-3360	QuickPort
Condor Computer	Filemanager, relational DB	313-769-3988	Xenix
Custom Solutions	Run's physician's office, circuit analysis	919-829-9151	Workshop
DCSC (aka The Systems Center)	Datacomm, 3278 emulation, SNA/SDLC contractor	415-345-0611	Office System
Execucom	Financial modeling language	512-346-4980	QuickPort
Financial Systems	Board rept'g-QP, loan doc pro-toolkit	308-237-5995	Toolkit
Interlobal Systems, Inc.	A/R, A/P, billing, & graphics	617-341-1856	Workshop, Toolkit
Metaware,Inc.	Pascal compiler; language development tools	408-429-6382	Workshop
Micro Focus, Inc.	Level // COBOL - GSA certified	415-856-4161	Xenix,Unix,ToolKit,QP
Odesta	Relational DB	312-498-5615	Toolkit
Open Systems, Inc.	Xenix, Accounting	612-870-3515	Xenix
Oracle, Inc.	System level DB capabilities	415-854-7350	Toolkit,QP,Office system
Panache Mgmt & Consulting	Financial DP, portfolio mgmt, general ledger	212-619-3033	Workshop
Prism	Large capacity disk	408-946-4600	All
Real World Corp	Accounting	813-446-9000	Xenix, Unix
Ryan-McFarland	COBOL	408-720-8668	Xenix, Unix
Santa Cruz Operations, The	Xenix	408-425-7222	--
Shop Controls, Inc.	computer aided estimate/processing for metal working	312-388-2000	Xenix
Silicon Valley SW	BASIC, Pascal, FORTRAN; custom work	408-725-8890	Workshop
Softweaver	Custom work using Unix	408-425-8700	Unix
Solarsoft, Inc.	Energy analysis	303-927-4411	Workshop, Toolkit
Sorcim	Supercalc/Spreadsheet	408-942-1727	QuickPort
Tess Enterprises	Medical dataentry; A/R	713-440-6943	Toolkit
Three R Computer	3270 datacomm (hardware interface to LisaTerminal)	213-306-6000	Office System
Unify Corp	Relational DBMS	916-920-9092	Unix
Videx	Time mgmt. (calenar, notepad, appointment)	503-758-0521	Toolkit
Wadsworth Electronic Pub	Statistics/Education, Statpro	415-595-2350	QuickPort

Below are listed additional companies who are developing for the Lisa but who have not yet given us permission to release the name of their product.

Aardvark Software
The Computer Company
DigiCorp
Harper & Shuman, Inc.
Micro-Integration, Inc.
Orchid Software
SMC Systems & Tech, Inc.
WOS Data

American Mgmt Systems, Inc.
Context Mgmt Systems
Digital Research
Industrial Computations
Microsoft
Perfect Software, Inc.
SPSS, Inc.

AMI
Crystal Image
Ellipsis Systems
ISYS
Naru Enterprises
Quadratron Systems, Inc.
Telos Software Products

The Breon Company
Custom Labs
Graphon
Metagraphics
Nereid Systems, Inc.
Senaphore Corp.
TeX

Computer-Aided-Planning
Desk Top Mgmt Sys, Inc.
Green Hills Software
Micro Focus LTD
Northern Data systems
Sir-tech Software
Unisoft

Competitive Analysis - Hardware

Lisa's leading edge, state-of-the-art hardware has key advantages over the competition, and gives you more for your money.

- The Apple 32 family gives the user a variety of price/performance options from which to choose.

- Capacity. The Lisa has more main memory than competitive systems which allows for more complex programs and larger spreadsheets.

- Power. The Lisa hardware is based on a powerful architecture not present in IBM systems. This architecture includes:
  - 32 bit technology (others use 16 bit engines)
  - memory management to support multitasking

- Display. The Lisa's display has much higher resolution which enables the user to better view complex graphics and many styles of text.

- Price. The Lisa is less expensive and more powerful than a comparably equipped IBM PC pr PC/XT.

Competitive Analysis - Hardware

	Lisa 2	IBM PC	Lisa 2/10	IBM XT	*Lisa Advantage*
Processing Power	32-bit	16-bit	32-bit	16-bit	*2x power*
Screen Resolution	5400 dots/in^2	1800 dots/in^2	5400 dots/in^2	1800 dots/in^2	*3x resolution*
Standard Memory	512kB	64kB	512kB	128kB	*4-8x memory*
Maximum Memory	1MB	640kB	1MB	640kB	*2x memory*
Standard Disk Capacity	400kB	160kB	10.4MB	10.3MB	*1-3x storage*
Price *	$3495	$4343	$5495	$7079	*Lisa Much Lower*

* Suggested retail price for similarly configured systems

Competitive Analysis

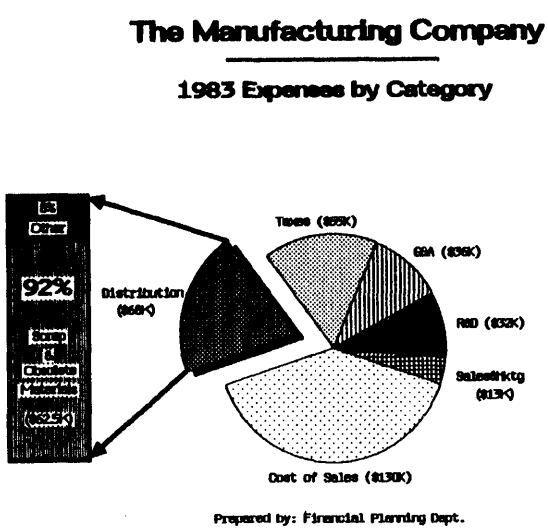
IBM® PC-XT™ with Lotus 1-2-3™

You can do everything you will ever want to do with a personal computer, and because of the Lisa's graphics mouse interface you learn to use it faster and more productively than any competitive solution.

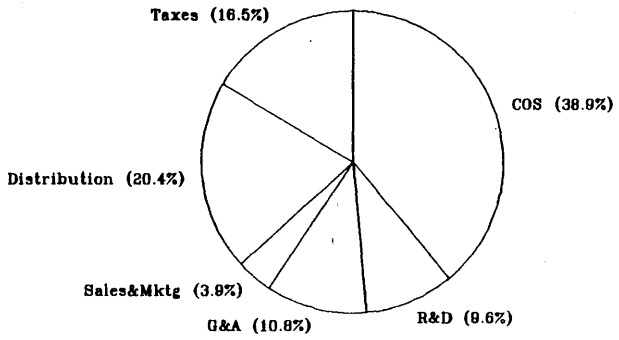
- The Lisa has twice the processing power, twice the memory, and twice the screen resolution of the IBM.
- Because of its greater memory capacity, the Lisa's applications can handle up to 10 times more information than 1-2-3.
- The Lisa's graphics can be created and printed two times faster . The Lisa, unlike 1-2-3, is not limited to conventional line, bar, & pie charts, and therefore provides professional looking results.
- Lisa can communicate with other computers including mainframes.
- Lisa is an open system with new integrated applications available from third parties.
- The Lisa Office System is priced $1500 less than a comparable IBM/1-2-3 solution.

The Lisa vs IBM® PC-XT™ with Lotus 1-2-3™

Lisa Pie Chart



1-2-3 Pie Chart



The Lisa 2/10 includes:

One half to one megabyte of memory

Six integrated office applications:
- LisaCalc, LisaDraw, LisaGraph
- LisaList, LisaProject, LisaWrite

32-bit processor

High resolution screen (720x364)

One built-in 10 megabyte hard disk

One 400kB 3-1/2" micro floppy disk

The IBM XT with Lotus 1-2-3 includes:

One half megabyte of memory

Lotus 1-2-3:
- spreadsheet, business graphics, and database

16-bit processor

Low resolution screen (600x240)

One built-in 10 megabyte hard disk

One 320kB 5-1/4" conventional disk

And . . . the Lisa costs $1500 LESS !

Competitive Analysis

IBM® PC-XT™ with VisiOn™

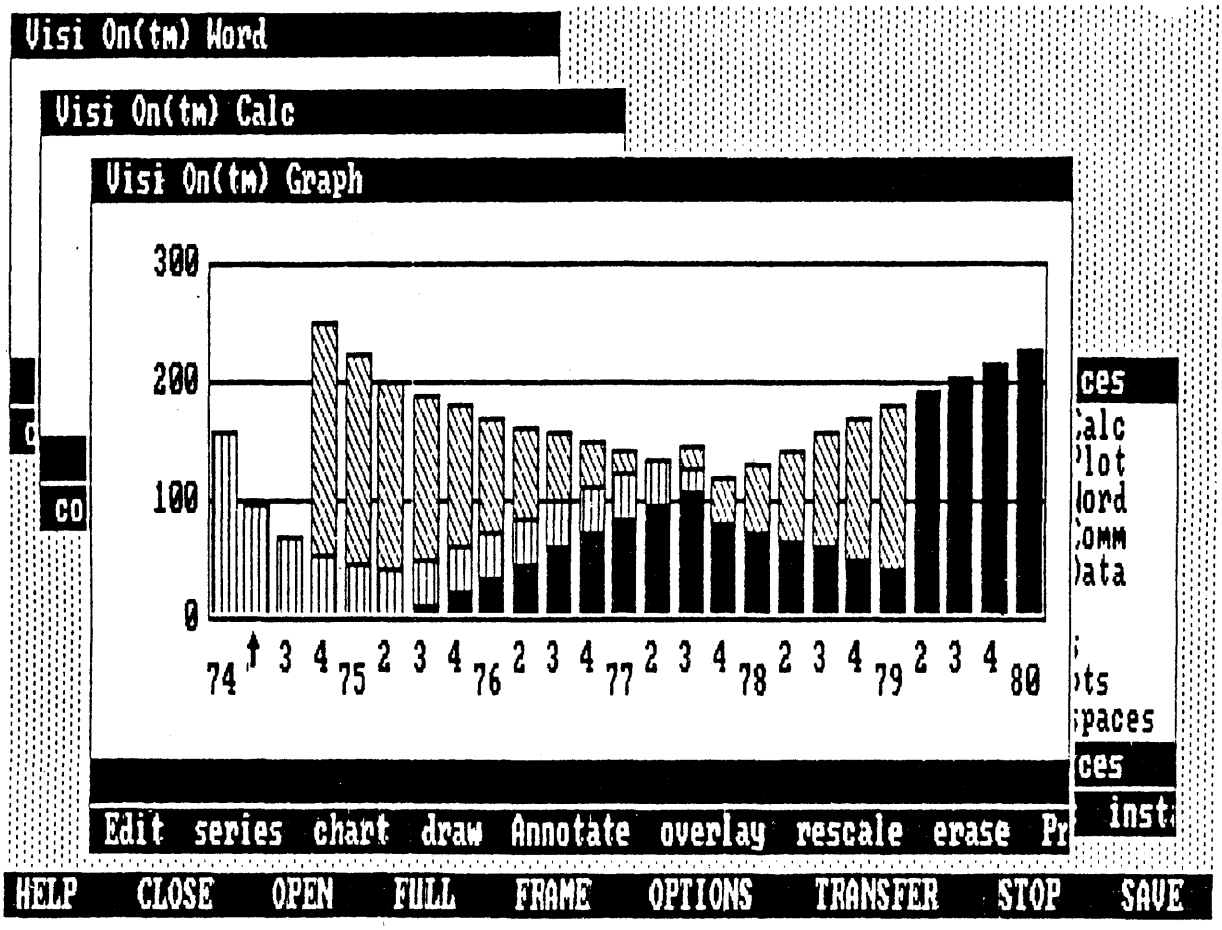
You can do everything you will ever want to do with a personal computer, and because of the Lisa's graphics mouse interface you learn to use it faster and more productively than any competitive solution.

- The Lisa provides seven applications now, including data communications; VisiOn only has three.
- The Lisa is an open system with many developers writing new applications on the Lisa for the Lisa. VisiOn applications cannot be developed on the IBM PC/XT.
- VisiOn's user interface is cumbersome:
  - No desktop manager (text only, no icons).
  - Two button mouse is confusing, needs a special pad, and requires seven times more desk area.
  - Four operations to resize windows.
- VisiOn is text oriented and has limited graphic capabilities. Sophisticated graphic applications (e.g., LisaProject) are very difficult under VisiOn.
- VisiOn uses conventional IBM printing technology. Lisa's revolutionary printing remains unmatched.
- The Lisa solution is priced $2400 less than the comparable IBM/VisiOn solution.

Competitive Analysis Screen Comparison

IBM® PC/XT with VisiOn™

VisiOn Screen Shot



Competitive Analysis

LisaWrite vs. Wordstar:

A Benchmark Test

- **Edit & Format in one third the time with LisaWrite**
  - The Lisa's mouse means fewer steps and keystrokes to edit text
  - Multiple documents on the screen allows faster merging of parts of docments
  - Advanced features like "Clipboard" memory of format and specialized tab functions make editing a breeze

- **LisaWrite's printing is superior**
  - Higher quality output including various type styles and special characters
  - No print wheel change with daisy wheel printer for multiple fonts on same page
  - "Background Printing" allows the user to do other work on the Lisa while printing takes place

Benchmark Test* Time Summary

	LisaWrite	Wordstar
Edit & Format	21 minutes	59 minutes
Edit,Format,&Print (dot matrix)	30 minutes	1 hour, 37 minutes
Edit,Format,&Print (daisy wheel)	29 minutes	1 hour, 4 minutes

* Edit, format, and print four pages of a standard auto insurance policy. Experienced LisaWrite and Wordstar users conducted the test. Text entry was not part of timed test.

LisaWrite vs Wordstar

Finished Document Samples

LisaWrite
Daisy Wheel
Printer

WHEN AND WHERE COVERAGE APPLIES

When Coverage Applies

The coverages ***you*** chose apply to accidents and any ***loss*** that takes place during the policy period.

Payments must be made on or before the end of the current policy period. The policy period begins and ends at 12:01 A.M. Standard Time at the address shown on the declarations page.The policy period is shown under "Policy Period" on the declarations page and is for successive periods of six months each for which ***you*** paid the renewal premium.

Where Coverage Applies

The coverages ***you*** choose apply:

1. in the United States of America, its territories and possessions or Canada;or
2. while the ***insured*** vehicle is being shipped between their ports.

Wordstar
Daisy Wheel
Printer

WHEN AND WHERE COVERAGE APPLIES
When Coverage Applies
The coverages you chose apply to accidents and any loss that takes place during the policy period.
Payments must be made on or before the end of the current policy period. The policy period begins and ends at 12:01 A.M. Standard Time at the address shown on the declarations page.The policy period is shown under "Policy Period" on the declarations page and is for successive periods of six months each for which you paid the renewal premium.
Where Coverage Applies
The coverages you choose apply:

1. in the United States of America, its territories and possessions or Canada; or
2. while the insured vehicle is being shipped between their ports.

Small Business

For small businesses and professionals,the Lisa has comprehensive Accounting systems for single or multiple users.

- The Lisa/BPI accounting solution offers superior price- performance relative to accounting solutions available on the IBM PC-XT.

- The Lisa architecture and BPI accounting software leverage a user's productivity in 4 ways:
  - Print Spooling (up to 20 documents on 2 printers)
  - Access to current information at all times
  - Historical & budgetary comparisons
  - Graphics Mouse user interface for ease of use

- The Lisa/XENIX/Open Systems multi-user accounting solution offers users 4 principal benefits:
  - Superior price-performance
  - With file & record locking, multiple users can work concurrently on any application.
  - The A] [+, A //e, A ///, Lisa, and data entry terminals can be connected to a host Lisa running XENIX and Open Systems accounting.
  - Users can create custom reports or transfer accounting files to XENIX productivity software with the Team Manager.

Small Business

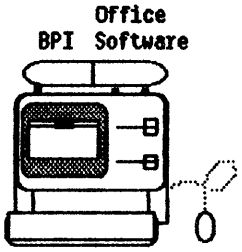
Lisa/BPI vs IBM PC-XT/Peachtree/Lotus 1-2-3

	System Price
Lisa/Lisa Office Software/BPI GA/DM Printer	$ 9,085
IBM PC-XT/Lotus 1-2-3, Wordstar, Harvard Project Mngr./ Peachtree GL/DM Printer	$ 9,794

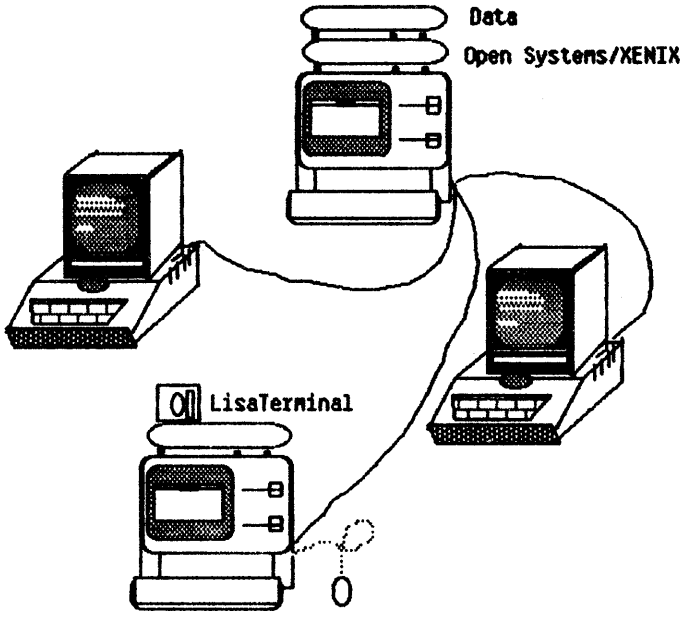
Lisa/XENIX versus Fortune System 10 & Altos 586-10

	System Price ($) Number of Users			
	1	2	3	4
Lisa/2 Profiles/XENIX/ 8 Open Systems apps/DM Printer	13,645	16,840	18,335	19,335
Fortune System 10/ 7 app Bus. Acct. System/Printer	14,950	18,830	23,115	24,210
Altos 586-10/ 8 app Altos Acct./ Printer	13,329	14,324	17,309	18,304

BPI Accounting System



Open Systems Accounting System



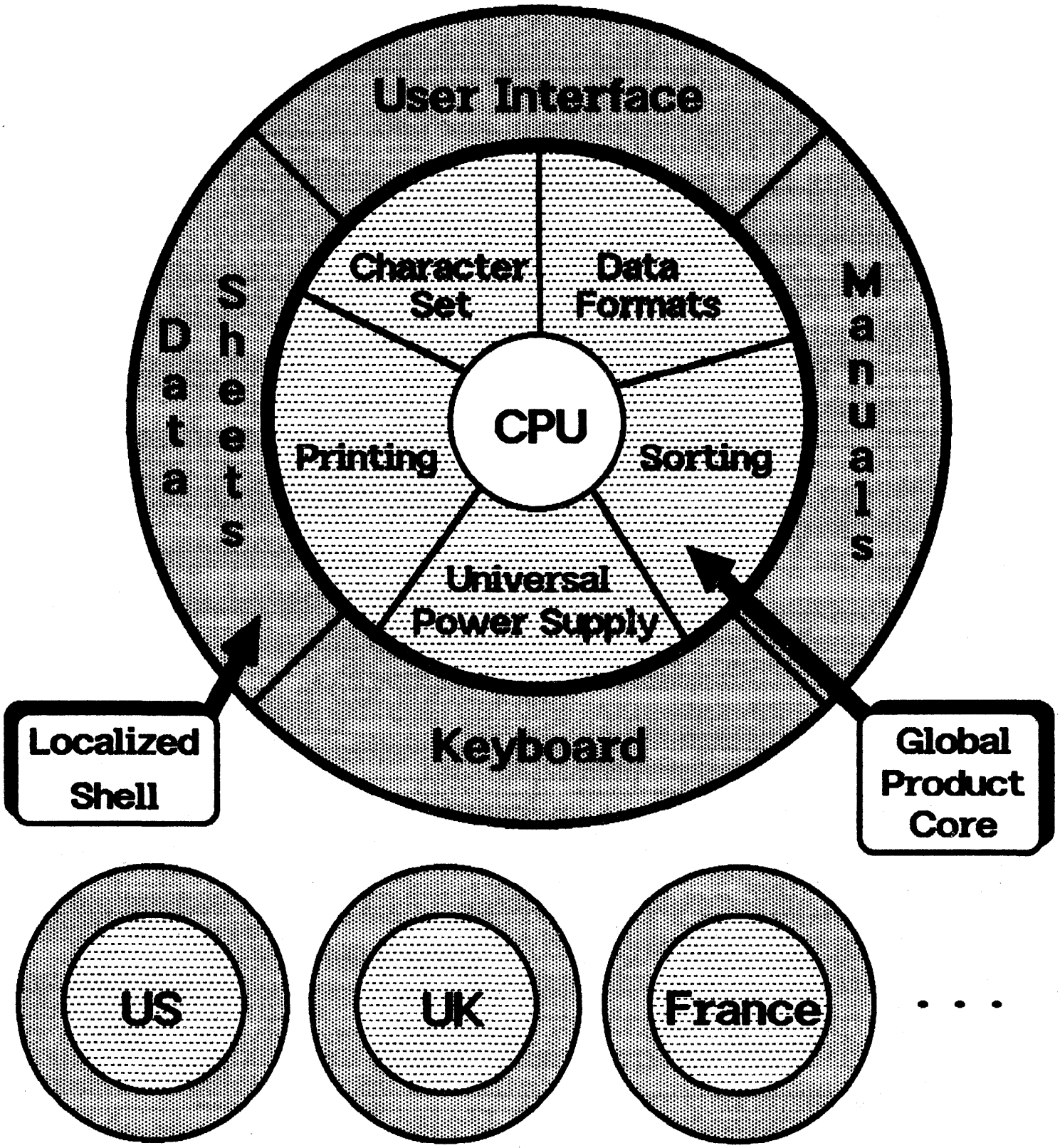
International

Multinationals and companies around the world can now take advantage of the productivity the Lisa offers.

- The Lisa is the first truly international personal computer with:
  - international character set
  - flexible data formats
  - correct alphabetical sorting
  - printing for American and European paper sizes
- The Lisa is presently available in:,

  British English French German
- In early 1984 the Lisa will be available in:
  - Italian
  - French Canadian
  - Swiss German
  - Dutch
  - Swedish
  - Spanish
  - Swiss French
  - Latin American
- The Lisa development tools will allow independent software houses to write global applications for worldwide markets.
- Over 50 European third party developers are already creating new Lisa application software.

Design for World-Wide Markets



Service and Support

The Lisa has been designed to be as easy to service as it is to use. This minimizes repair cost and downtime.

- Installation and orientation are provided at no extra cost.
- There is a large variety of service options available.
  - On-site, on-demand service
  - User self-service
  - Customer carry-in service
- User gets free service and support for 90 days.
  - Access to the toll-free phone support
  - Hardware and software warranty
- Users can buy software updates for a nominal fee.
- Apple's data shows the Lisa to be as reliable as an Apple //, corrected for the relative complexity of each system.

Lisa

LISA SALES AND MARKETING BINDER - FEBRUARY 15, 1984

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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,™ 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.

Lisa

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™ 5 megabyte hard disk

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

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: LisiCalc Tool Diskette
LisiCalc 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 replotted immediately.

Include crisp, clear printouts in your reports or presentations. A variety of typestyles, including large presenation-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 typestyles--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 builit-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 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™

Apple Part Number: A9D0001

Pricing: Suggestesd 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 (Applenet 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)

Product Name: Lisa Dealer Trainer Certification Course

Apple Product Number: SE60002

Pricing: Suggested Retail Price: N/A

Description: The Lisa Dealer Trainer Certification Course is an advanced level, three day course that provides dealer trainers with the materials and skills necessary to conduct expert Lisa training seminars for end-users. The course teaches trainers how to structure in-depth courses on the six Lisa applications into seminars that can be sold as a part of your total service and support offerings with the Lisa Office System.

By having at least one person attend this course, you satisfy the extended product training requirement set forth in the Personal Office Systems Product Family addendum to your Authorized Apple Dealer Agreement.

Features and Benefits: The exercises and activities in this advanced course makes you a Lisa expert. In addition to being able to offer in-depth training seminars and workshops, you become an important support asset to the dealership. As an applications expert, you will be able to handle most questions that come from users as well as matching sales prospects' needs to solutions with a Lisa Office System.

You will receive a Course Manager's Guide which includes course maps, materials for producing overhead projections for presentations, and guidelines for teaching applications and their integration. You don't need to develop any other materials to give training courses.

Materials Included:
250-page Course Manager's Guide
Learner's Guide Exercises on diskette
Videotape on the Desktop Manager.

Prerequisites:
You should have completed the following prerequisites before attending this course:
- All six Getting Started tutorials in the Lisa manuals, and
- Chapters 1 through 3 of all six application tutorials in the manuals.

These requirements can be done in about 40 hours of self study.

Procedural Note:
Orders should be accompanied by the name and phone number of the person to be contacted by Apple's Trainer Administrator for scheduling the course.

Product Name: Apple Modern 10/12 Proportional Spacing Printwheel for Lisa
Apple Modern 10/12 Additional Characters Printwheel for Lisa
Apple Modern Italics Proportional Spacing Printwheel for Lisa

Apple Part Number: A9G0324 - Modern 10/12/PS Printwheel for Lisa
A9G0325 - Modern 10/12/Additional Printwheel for Lisa
A9G0326 - Modern Italics/PS Printerwheel for Lisa

Pricing: Suggested Retail Price: $16.50 each

Description: The Apple Modern 10/12 Proportional Spacing, the Apple Modern 10/12 with Additional Characters, and the Apple Modern Proportional Spacing with Italics printwheels are designed specifically and exclusively for use on the Apple Daisy Wheel Printer with the Lisa Office System. Apple's multipitch printwheels allow 10 pitch, 12 pitch, and proportionally spaced type without changing wheels. The Modern 10/12/with additional characters printwheel enables you to print all of Lisa's 168 characters with the same wheel.

Applications: All three printwheels are designed to enhance the message of the text when Lisa is printing with the Apple Daisy Wheel Printer.

Features and Benefits:

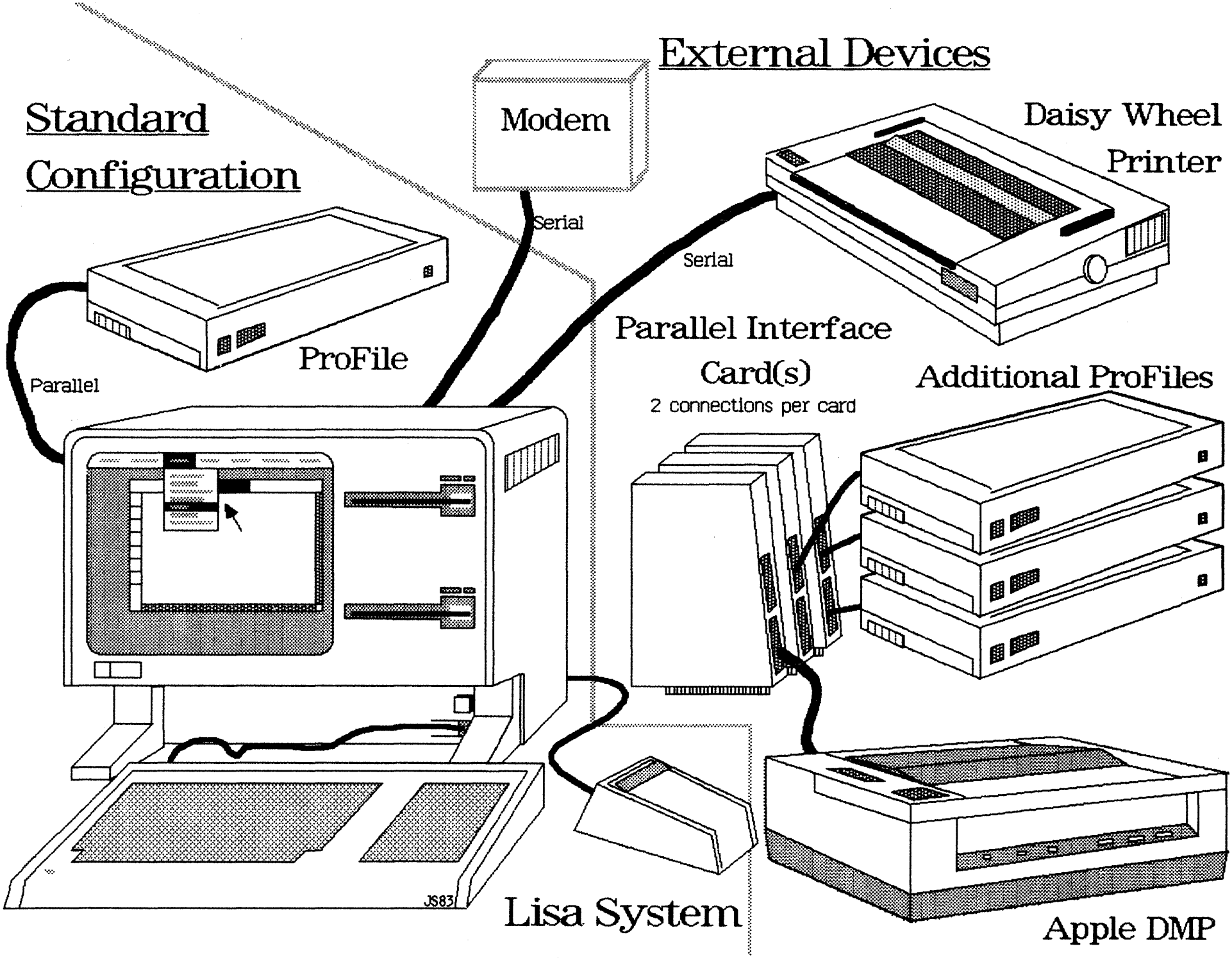
- Dual plastic construction provides an average life five times greater than most wheels
- Fine Swiss craftsmanship provides consistantly high print quality throughout the life of the wheels
- The Apple Modern 10/12/PS allows 10 pitch, 12 pitch and proportional spacing in modern, clean office type style without changing wheels
- The Apple Modern 10/12/with Additional Characters enables multipitch printing of all 168 Lisa characters
- The Apple PS/with Italics provides high quality proportional spacing with the added flare of Italic printing without changing wheels.

Items Included:

- Printwheel with storage case.

Equipment Required:

- Lisa Personal Office System
- Apple Daisy Wheel Printer and Accessory Kit.


Standard Configuration
External Devices
Modem
Daisy Wheel Printer
Serial
Serial
ProFile
Parallel
Parallel Interface Card(s)
2 connections per card
Additional ProFiles
J583
Lisa System
Apple DMP

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

Feature	IBM XT	Lisa
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

Feature	Professional 350	Lisa
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

Feature	Professional 325	Lisa
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 Omninet 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 Omninet interface and the Concept's operating system (a modified version of Unix), making the Concept well-suited for network applications. An Omninet 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

Feature	Concept	Lisa
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 Itel 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

Feature	Fortune 32:16 Hard disk system	Lisa
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 cutomers. 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

Feature	Xerox Star	Lisa
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

Feature	Xerox 820-II	Lisa
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

Lisa
Competitive Analysis

IBM® PC, PC-XT with Lotus™ 1-2-3™

- The Lisa™ Office System is a truly integrated system.

- The Lisa offers at least two times the power of the IBM/Lotus solution.

- The Lisa's graphics are faster and more powerful.

- Printing the Lisa's graphics is easy and it produces very high quality results.

- The Lisa's spreadsheet is more accurate and can handle larger models.

- The Lisa supports larger data bases and has greater sorting capabilities.

- Over 100 third party developers are already creating new Lisa application software.

- The Lisa is comparably priced with the IBM/Lotus solution.

The Lisa Office System vs. IBM PC, PC-XT with Lotus 1-2-3

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Detailed Analysis and Examples

The Lisa Office System is a truly integrated system.

• The Lisa Office System includes seven integrated office applications: speadsheet, database, business graphics, free form graphics, project scheduling, word processing and data communications. Lotus 1-2-3 includes only a spreadsheet with some sorting and searching capabilities and rudimentary business graphics.

• The Lisa Office System uses a revolutionary software technology which makes learning to use the computer a simple, intuitive matter. Lotus 1-2-3 is much harder to learn and use. It uses "computerese" commands which require many steps to perform single actions like printing.

• A single company, Apple Computer, Inc., designed and supports the Lisa Office System. The 1-2-3 office solution requires piecing together products from up to 7 different vendors--each with varying levels of service and support.

Why should a prospective buyer care?

Even if all the vendors had proven their ability to support the needs of the office, a multiple vendor solution makes integration between applications (such as with the Lisa) impossible.

Furthermore, the multiple vendor solution quickly becomes a frustrating experience as the user tries to tie together many disjoint pieces of the puzzle--**pieces that were never designed to fit together in the first place!** Compounding the problem is the fact that it is next to impossible to get support from vendors who do not know how the "other guy's" product fits together with theirs.

This is no fault of these vendors because new companies enter and many companies leave the industry every day. It's virtually impossible to stay on top of every vendor and their requirements.

The maxim "Buyer Beware" applies here. A single vendor solution can clearly minimize the user's risk and frustration.

Below are some key points about Apple versus the multiple vendor 1-2-3 solution.

The Lisa Office System

1) The Lisa solution is provided entirely by Apple Computer, Inc.

2) With nearly $600 million in sales during 1982, Apple has earned its way into the Fortune 500 as a successful company that is here to stay. In 1982 we earned a 28% return on shareholders' equity. Apple ended the year with 3400 employees, NO long term debt, and $153 million in cash.

3) Apple is committed to technological leadership--spending 6.5% of 1982 revenue on research and development. Some of the results of the R&D effort which were announced this year include:

- The revolutionary Lisa.

- AppleNet. This is a local area network linking all Apple products together to allow sharing of information between workers and the sharing of resources such as printers. The use of the network and the information transmitted across it are completely integrated with the Lisa Office System.

- Data Communications. This software allows the Lisa to "talk" to mainframe computers and remote databases and is integrated with the Lisa's office environment.

4) Apple is supporting Lisa users with:

- Toll free phone service staffed by Lisa experts to answer any user questions or help with any problems that can be dealt with by phone.

- On-site service for any hardware or software problems within 24 hours of a trouble report (along with other service options).

- A qualified sales and sales support team residing at Apple sales offices. Apple has specially trained its Lisa Office System dealers.

5) Apple is encouraging additional new solutions on the Lisa by making it an "open" architecture. This means 3rd party software developers can easily create new programs for the Lisa, while Apple continues to enhance the applications available today. Over 100 developers already have Lisas and are developing new applications. Soon, with the addition of the application "toolkit" and continued support directly from Apple, developers will be able to leverage off Apple's 200 person-years of investment in Lisa technology.

IBM PC/1-2-3 Solution

1) IBM: It provides the **computer piece** of the solution. IBM has long been recognized as the industry leader providing quality mainframe computer products to the office.

- IBM was a late entrant (1981) into the personal computer business, trailing Apple's lead by nearly five years. This headstart has given Apple greater insight into the needs of users of personal computers.

- The revolutionary Lisa is widely recognized in the personal computer industry as being technologically far ahead of the PC. Since technological advance means more computing power, more memory, and easy-to-use integrated solutions, such a technical lead is of more than passing interest to most users.

2) Lotus Development Corporation: It provides the 1-2-3 **software piece** of the solution. Lotus is a 130 employee company created in 1982. Its only product is 1-2-3, which was introduced in 1983.

3) For the **printer/plotter piece** of the solution: Epson, IDS Prism, and/or Hewlett-Packard.

4) Choose the **remaining pieces** of a system solution (other application software, data communication, network, etc.) from a variety of vendors.

The Lisa offers at least two times the power of the IBM/Lotus solution.

• **The Lisa has twice the computing power.** The Lisa uses the Motorola 68000, a 32/16 bit microprocessor. The IBM PC and IBM PC-XT use the Intel 8088 processor which is a 16/8 bit microprocessor.

• **The Lisa has twice the memory capacity of the IBM PC running 1-2-3.** The Lisa comes **standard** with a full megabyte of memory. Lotus recommends on page 269 of the 1-2-3 manual that in order for 1-2-3 to have full power the IBM PC should have 512 K of memory. The IBM PC and PC-XT come standard with only 64K and 128K respectively.

• **The Lisa has twice the screen resolution.** With the Lisa's greater screen resolution, you are able to see a much higher quality display which exactly represents what will be printed out.

• **The Lisa has much greater floppy disk capacity.** The Lisa comes standard with 2-1/2 times and 4-1/2 times the floppy disk storage capacity of the IBM PC and PC-XT, respectively, which is needed to run 1-2-3.

Please see the Price/Feature Summary on page 13 for a comparison of hardware features.

The Lisa's graphics are faster and more powerful.

• **The Lisa's graphics are more "flexible".** The Lisa provides many more graph types and much more customization capability. The Lisa also has very powerful free form graphics capabilities on the Lisa which do not exist at all on 1-2-3.

LisaGraph allows labels, titles, and annotations to be placed anywhere on a graph to emphasize key points. The user simply points where he wants the text placed and types it in. Lotus 1-2-3 restricts the user to bare bones annotations:title, subtitle, axis labels, and legends.

Furthermore, certain default graph elements cannot be altered on 1-2-3 (e.g. pie charts show each slice's percentage of the total pie next to that slice's label--this percentage cannot be dropped, nor can the user print in the actual values of each slice). LisaGraph gives you the ability to change all default graph settings. (See example on page 17.)

LisaGraph allows full word or multiple word legends to identify fill patterns or data points on graphs. Lotus 1-2-3 requires very abbreviated legends--**maximum one letter legends** for six data set graphs like a six line graph. Therefore, with the Lisa a legend identifying one

line of a six line graph might say "ACTUAL EXPENSES". With 1-2-3, it would say "A". (See example on page 16.)

All the necessary customization features in LisaGraph exist to produce presentation quality graphics. The number of customization features far surpasses such features in 1-2-3. For example, LisaGraph has 264 combinations of type fonts and styles available for annotations and titles. Lotus 1-2-3 has only 8 font/styles, two of which are script and not of presentation quality. Lotus 1-2-3 has many fewer customization features, and not all are of presentation quality (e.g. grid lines are bold, black lines that cut right through bar graphs rendering them very confusing to read. LisaGraph grid lines are gray and placed behind bars on charts). (See example on page 15.)

Graphs can be pasted into LisaDraw, the Lisa's free form graphics application, for virtually unlimited customization. Exploding a pie chart, or customizing any other graph, is a good example. Lotus 1-2-3 is itself very restrictive compared to LisaGraph. Compounding this problem for presentation graphics, there is no LisaDraw equivalent to into which you can paste a graph for further enhancement.

LisaDraw, as a standalone graphics tool, allows creative, visually interesting, high quality graphics in any form to explain most situations or problems. Flow charts, organization charts, maps, and diagrams of products are but a few examples. Lotus 1-2-3 allows production of only standard graph types (bar, pie, line), and there is no LisaDraw equivalent available for the IBM Personal Computer. (See example on page 18.)

- **The Lisa produces much higher quality graphics for presentations** due to the greater flexibility discussed above and 33% greater printer resolution.

- **What you see on the Lisa's screen is what you get printed out.** Lisa's printed graphs never surprise you because with a click of the mouse button a graph is printed exactly as it is shown on the screen. Lotus 1-2-3 users must guess how the graph will look when printed and must go through over a dozen confusing steps to print.

- **Graphs can easily be modified on the Lisa.** A LisaGraph document can be saved (graph, data, titles, and all) then retrieved at any time for changes. Since LisaGraph's graphics print out exactly as they appear on the screen, modifications are needed less often than with 1-2-3.

1-2-3 does not allow direct modification of graph files after they've been saved on the data files diskette. Modifying a graph is, therefore, a time consuming process involving diskette swapping and many commands.

- **The Lisa prints the data used to create the graph in tabular form.** Lotus 1-2-3 requires special creation of a data table consisting of data used in a graph, then a multiple step printing process.

- Not only is graphics creation on the Lisa faster, **the Lisa lets users continue working with any Lisa application while a graph, or any Lisa document, is printing.** When 1-2-3 graphs are printing, the computer cannot be used for other work.

- **The Lisa's graphics are faster.** It takes 4 times longer to create a graph on 1-2-3; 2.5 times longer to print the graph.

Average Graphing Time Summary

	Lisa Office System	PC/1-2-3/Epson Printer
Create Graph	16 seconds	69 seconds
Print Graph	5 minutes	13 minutes*
TOTAL	**5 minutes, 16 seconds**	**14 minutes, 9 seconds**

* The user can't do any other work on the IBM PC while something is being printed. On the Lisa you can always continue working while printing is in progress.

• **On the Lisa, graphs are easily generated from spreadsheet data.** To generate a graph from LisaCalc information, a user simply copies a region of data from the spreadsheet and pastes it into LisaGraph's data table. The graph is drawn instantly (only 2 commands required: pointing to words "copy" and "paste" with mouse).

1-2-3 requires the x-axis range and each of its data sets to be input separately. Then, an alternate "graph" screen must be selected to allow 1-2-3 to draw the graph (minimum of 10 computerese commands such as "/WX")

Printing the Lisa's graphics is easy and it produces very high quality results.

• **Printing on the Lisa is faster.** A typical high resolution graph is finished printing in 5 minutes on the Lisa. On the PC it takes 13 minutes to print, including the set-up steps. (See table at the top of this page.)

• **It is much easier to print a graph on the Lisa than when using 1-2-3.** To print a LisaGraph graphic requires simply pointing with the mouse to the phrase "print graph." 1-2-3 requires saving the graph on a data diskette, placing a special graph print program diskette in the computer, selecting which graph(s) is to be printed from the data diskette, then finally commanding the graph to print.

• **The Lisa lets you continue working while any document is being printed.** You can start printing your graph and then continue working with any Lisa application. While a 1-2-3 graph is printing, no other work can be done on the IBM computer.

• **The LisaGraph user sees a graph on the screen exactly as it will appear printed,** so there are never any surprises. Lotus 1-2-3's graphs appear different on the screen than they do when printed. Therefore, the user must either guess how the final product will look or must be prepared to print it twice.

• **On the Lisa you can easily orient the graph any way you choose.** Choosing between printing a graph horizontally or vertically with the Lisa requires a simple selection of which paper orientation is required. With 1-2-3, such a selection requires complex calculation of aspect ratios and other formatting specifications. There is no visual feedback on the screen to show if the calculations and formatting instructions are correct--the user must wait for the printout (several minutes later) to see if settings were correct.

• **In addition to printing a Lisa graph, you can also easily print the data itself.** LisaGraph's data table is always shown on the screen beside the graph and it can be easily printed by simply pointing with the mouse to the phrase "print table" and it's done. Lotus 1-2-3 shows data on one screen (or monitor) and graphs on another screen (or 2nd monitor). Furthermore, data used to generate a graph is not stored with the graph. To print the data used in a graph requires creation of a special data table in the 1-2-3 spreadsheet, and printing of that region of the spreadsheet.

The Lisa's spreadsheet is more accurate and can handle larger models.

• **LisaCalc gets the correct answer.** With complicated spreadsheets there are numerous formulas that reference different parts of a spreadsheet, and it is not uncommon to have circular references (cells that indirectly reference their own values). LisaCalc automatically continues to calculate a model until all the values in the cells are correct! So you can always be assured of getting the correct answer.

1-2-3 does not always get the correct answer. For instance, if you have a circular reference within a model, 1-2-3 requires that the person using the model know how many times the model must be "calculated" until the model is accurate. The result is that users often may not know how many times the model must be calculated and they are given incorrect results by 1-2-3.

For example, the model at the top of the next page on the left was done on the IBM-PC with 1-2-3. Notice that it has an incorrect answer, while the Lisa system calculated the correct answer, which is shown on the right. In the case of the 1-2-3 model, "Sales" minus "Cogs" minus "Taxes" is not equal to the result in "Income"!!! In this small model it is very easy to detect that 1-2-3 is currently not displaying the correct answer, but in large models it is very difficult to detect this problem. The Lisa solves this problem by always continuing to recalculate the model until all of the answers are correct.

IBM PC running 1-2-3

```
Sales        $1,000,000
Cogs           $600,000
Taxes           $80,000

Income         $400,000

A1: 'Sales
B1: 1000000
A2: 'Cogs
B2: +B1*0.6
A3: 'Taxes
B3: +B5*0.2
A5: 'Income
B5: +B1-B2-B3
```

Lisa

	A	B
1		
2	Sales	$ 1,000,000
3	COGS	B2*.6= $ 600,000
4	Taxes	B6*.2= $ 66,667
5		
6	Income	B2-B3-B4= $ 333,333

• **LisaCalc models can be 5 times larger than 1-2-3 models.** The Lisa has one megabyte of memory and allows you to have very large models. Both LisaCalc and 1-2-3 are designed so that the models must be resident in main memory. Thus the maximum model size is limited by the amount of main memory.

1-2-3 only supports up to one half megabyte of main memory. The matrix of 1-2-3 is 256 columns by 2056 rows but the amount of main memory limits the maximum size of a model.

In the following example a model 45 rows by 255 columns is the maximum size model supported by 1-2-3; LisaCalc supports a model that is over five times that size.

Lisa

1. **Start with a blank document**
2. **Select Cell A3 and enter the formula "A1+A2"**
3. **Select and Copy cell A3**
4. **Paste adjust (replicate) into the region A3:IU255, Click the OK button.**

   You now have a LisaCalc model that is 252 rows by 255 columns!!!

IBM PC-XT/1-2-3

1. Start with a blank spreadsheet

2. Select Cell A3 and enter the formula "A1+A2"

3. Copy cell A3 into the region A3..IV47

   You now have a 1-2-3 model that is 45 rows by 256 columns and 1-2-3 is out of memory.

The Lisa's models can be five times larger than 1-2-3's models!!!

• LisaCalc data can be transferred into LisaWrite or LisaTerminal with a simple "cut and paste." This makes it simple to include LisaCalc data in letters and reports and put LisaCalc data into remote computer systems. Lotus 1-2-3 can transfer data into some word processors that support 1-2-3 file formats. The process for transferring the data is very time-consuming. Data Communication packages that accept 1-2-3 files are not widely available on the market.

• LisaCalc allows you to display and print formulas and cell values at the same time. This makes it very easy to inspect your spreadsheet to see that the proper information has been entered. With 1-2-3 you cannot display or print the formulas and values simultaneously. The user must print the formulas and values separately.

• LisaCalc has greater printing capabilities. LisaCalc automatically displays page breaks and allows you to easily print the model vertically or horizontally on a sheet of paper. Spreadsheets can be printed in three different typestyles with up to 48 rows and 22 columns (8 characters wide) on each page. Lotus 1-2-3 does not display page breaks and does not allow the user to print the model horizontally.

• LisaCalc allows you to view multiple spreadsheets at the same time and pass data between the documents. With 1-2-3 the user may only view one spreadsheet at a time.

• The Lisa has more flexibility for selecting cells and entering data. The Lisa has an 18 key numeric/cursor control pad. This allows you to select cells with either the cursor keys or the mouse and to input data from a standard numeric keypad. Lotus 1-2-3 forces a user to use the IBM numeric keypad for either cursor control or numeric entry, but not both simultaneously.

The Lisa supports larger data bases and has greater sorting capabilities.

• LisaList can support data bases that are ten times larger than data bases supported by 1-2-3. LisaList utilizes up to 4 megabytes of storage for data bases. For example, LisaList

can support up to 20,000 rows of information with 200 characters in each row. Lotus 1-2-3 can only have data bases up to 430 kilobytes of storage. For example, 1-2-3 could support only 2,000 rows of 200 characters.

• **With LisaList you get higher quality data.** LisaList supports eight different data types and automatically checks data integrity as the data is entered. Lotus 1-2-3 does not have any data type checking except when sort operations are performed. This makes it very difficult to detect typing errors.

• **LisaList can perform sorting on one hundred columns of information.** This allows extreme flexibility when creating lists of information. 1-2-3 can only perform sorting on two columns of information.

• **LisaList has better printing capabilities.** LisaList allows you to easily print the lists vertically or horizontally on a sheet of paper. Lists can be printed in three different typestyles with up to 48 rows and 22 columns (each column being 8 characters wide) on each page. Lotus 1-2-3 does not allow the user to print the model horizontally.

Over 100 third party developers are already creating new Lisa application software.

• Apple will be offering third party developers the Lisa Toolkit so they can create Lisa technology applications which are integrated with the seven office applications from Apple. Already more than 100 third party developers are working with Apple on creating new Lisa applications. Lotus 1-2-3 is a closed software architecture which means that in order for a new application to be added, the whole package would need to be rereleased.

The Lisa is comparably priced with the IBM/Lotus solution.

• **The Lisa solution is only 14% more expensive than the IBM/Lotus solution.** That extra 14% gets you much more memory, a better processor, greater screen resolution, more floppy storage and much better printing capabilities. Please see the Price/Feature Summary on page 13 and the more detailed price summary on page 14.

Questions and Answers

Q: I have heard that 1-2-3 is very fast. Is this true?

A: Lotus 1-2-3 performs some spreadsheet calculations very fast, but what is important is how long it takes to complete your work. Completing your work not only includes doing calculations on the spreadsheet, it also includes creating and printing spreadsheets, graphs, and word processing documents. LisaCalc also performs some spreadsheet calculations very quickly. The Lisa system, which is a total system solution, allows you to produce documents and perform analysis in a shorter period of time than 1-2-3.

Q: Isn't 1-2-3 an integrated spreadsheet,database, and graphics program?

A: Yes, 1-2-3 is an integrated spreadsheet,database, and graphics program. The Lisa is a complete integrated system of six application programs: LisaCalc, LisaDraw, LisaGraph, LisaList, LisaProject, and LisaWrite.

Q: Does the Lisa or 1-2-3 support spreadsheet model consolidation?

A: Neither the Lisa or 1-2-3 support true model consolidation. However, the Lisa allows you to pass data between spreadsheets by using "Cut" and "Paste". This sharing of data is very easily accomplished since the Lisa can display multiple documents on the screen simultaneously. With 1-2-3 you can load only two separate spreadsheets into the 1-2-3 matrix to share data between the two models.

Q: What about 1-2-3's keyboard macros? What are they and does the Lisa have them?

A: Keyboard macros allow you to save keyboard sequences and replay them. This is very useful on systems, like the PC running 1-2-3, that are keyboard oriented. With the Lisa, the use of the mouse saves you the trouble of typing in long commands and formulas so there is no need for keyboard macros.

PRICE/FEATURE SUMMARY

Based on Suggested Retail Price

	Lisa Office System	IBM PC-XT with 1-2-3	IBM PC With 1-2-3
For These Prices →	$10,865 *	$8,304 *	$6,107 *
The User Gets			
Main Memory	1024 KB	512 KB **	512 KB **
Floppy Disk Storage	1720 KB	360 KB	640 KB
Hard Disk Storage	5 MB	10 MB	--
Monitor Resolution	720 x 364	640 x 200	640 x 200
Printer Resolution	160 x 144	144 x 120	144 x 120
Computer	32/16 Bit	16/8 Bit	16/8 Bit
Office Solutions	Electronic Spreadsheet List Management Business Graphics Word Processing Free Form Graphics Project Scheduling	Electronic Spreadsheet List Management Business Graphics	Electronic Spreadsheet List Management Business Graphics

* See System Configuration on page 14

** All tests in this analysis were run on an IBM PC with 1/2 megabyte of memory due to Lotus's indication on page 269 of the 1-2-3 manual that 1/2 megabyte of memory gives 1-2-3 full power.

- ***The 1-2-3 solutions are no bargain:***
  - Lisa delivers many times the power of Lotus 1-2-3 on either the IBM PC or PC-XT.
  - Add Word Processing ($495) and Project Scheduling ($495) to the PC-XT/123 combination and the cost is $9294 (only 14% less than Lisa) for a solution which:
    - --Does not have Lisa's powerful presentation graphics (no such product is available for PC's)
    - --Does not offer the analytical power of the Lisa
    - --Is provided by multiple vendors
    - --Is much harder to learn
    - --Is much harder to use

The Lisa System Versus the 123 Solution

Based on Suggested Retail Price

1-2-3 on IBM PC*

IBM PC	$2,104
320 KB Floppy Disk Drive	529
448 KB RAM	1,155
Graphics Monitor	680
Graphics Monitor Card	244
Epson Dot Matrix Printer	695
Printer Interface Card	150
Printer Cable	55
Lotus 1-2-3	495
TOTAL	**$6,107**
	======
Plus Word Processing & Project Scheduling	**$7,097**
	======

* Basic Configuration (without extra software) includes:
  - --512 KB Main Memory
  - --640 KB Floppy Disk Storage
  - --Graphics Monitor (640x200 res)
  - --Graphics Printer (144x120 res)
  - --1-2-3 Software

1-2-3 on IBM PC/XT*

IBM PC/XT	$4,995
384 KB RAM	990
Graphics Monitor	680
Graphics Monitor Card	244
Epson Dot Matrix Printer	695
Printer Interface Card	150
Printer Cable	55
Lotus 1-2-3	495
TOTAL	**$8,304**
	======
Plus Word Processing & Project Scheduling	**$9,294**
	======

* Basic Configuration (without extra software) includes:
  - --512 KB Main Memory
  - --360 KB Floppy Disk Storage
  - --10 MB Hard Disk Storage
  - --Graphics Monitor (640x200 res)
  - --Graphics Printer (144x120 res)
  - --1-2-3 Software

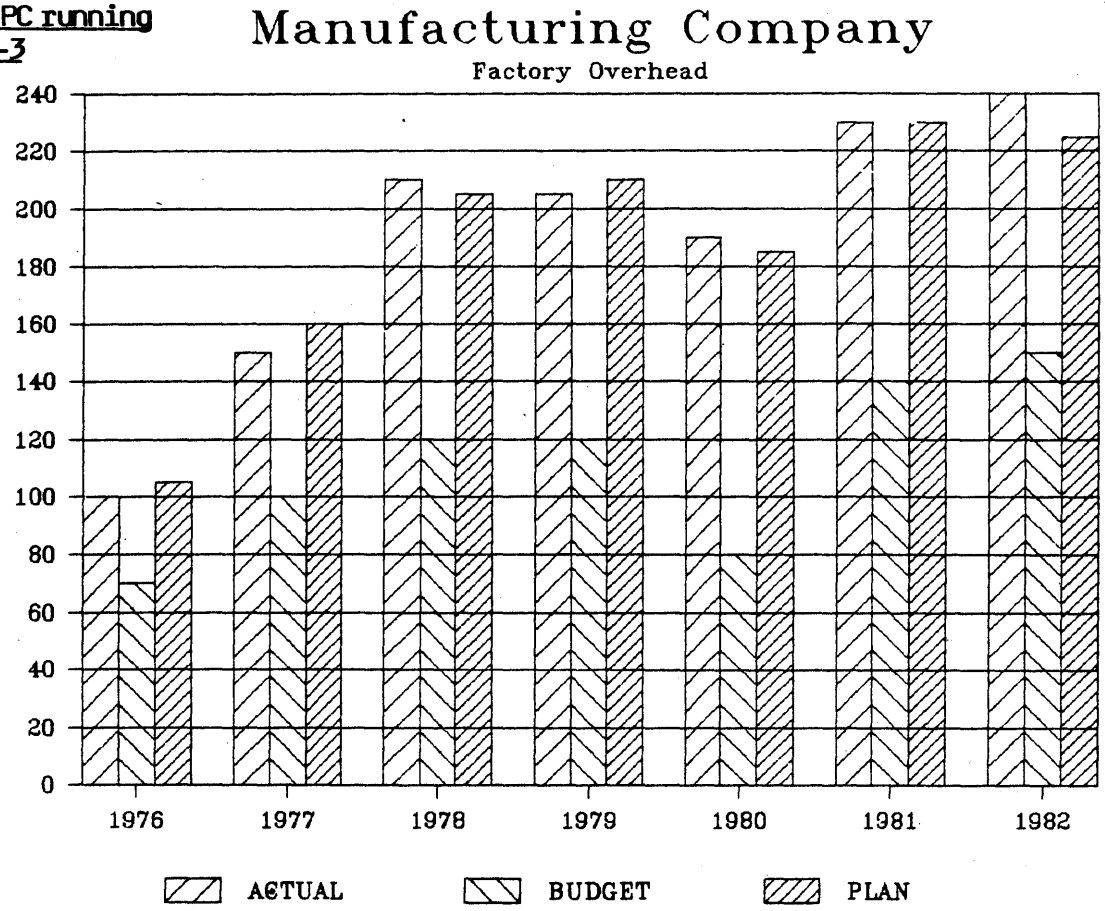
Lisa Office System*

Lisa Office System	$9,995
Apple Dot Matrix Printer	675
Parallel Interface Card	195
TOTAL	**$10,865**
	======

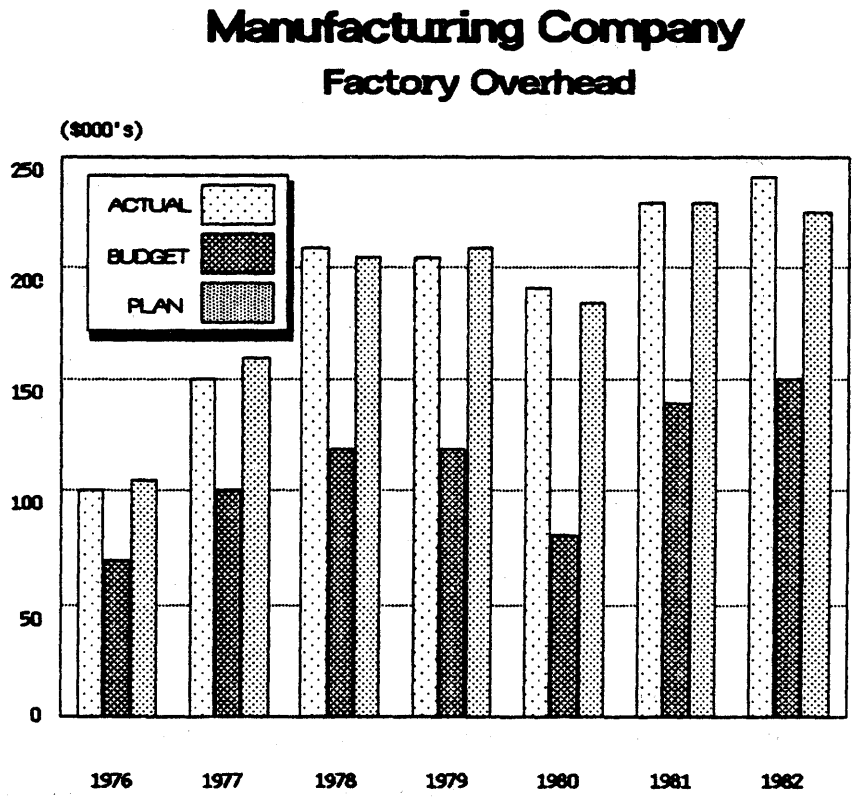
* Configuration includes:
  - --1000 KB Main Memory
  - --1700 KB Floppy Disk Storage
  - --5 MB Hard Disk Storage
  - --Graphics Monitor(720x364 resolution)
  - --Graphics Printer(160x144 resolution)
  - --Mouse
  - --6 Integrated Software Applications

Note that the grid lines cross over the bars on the 1-2-3 graph making it hard to read. Also notice the difference between the 1-2-3 legends and the Lisa legends.

IBM PC running 1-2-3

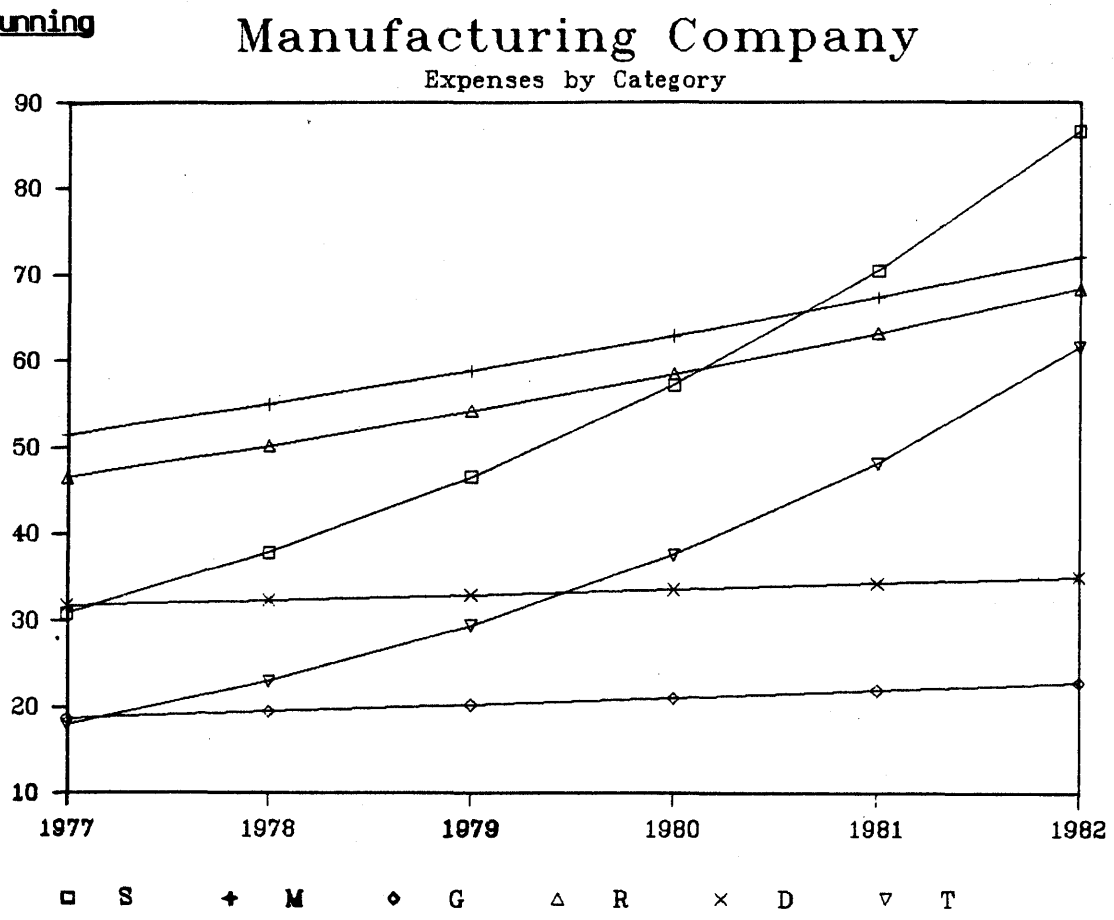


Lisa

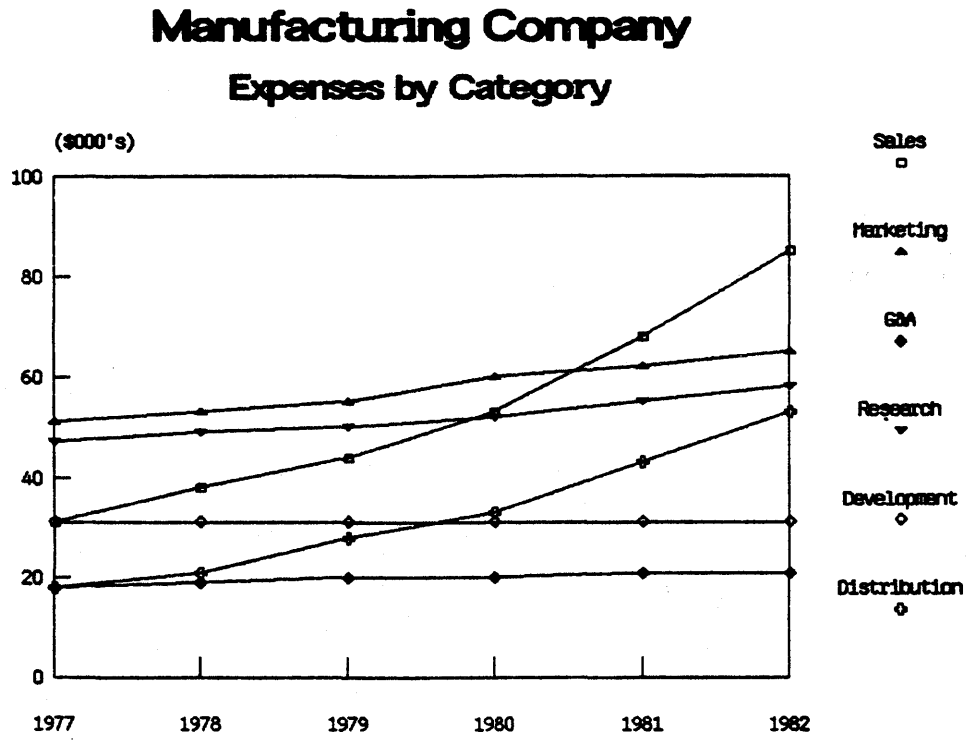


Note that 1-2-3 only allows one letter legends where the Lisa allows full word legends.

IBM PC running 1-2-3



Lisa

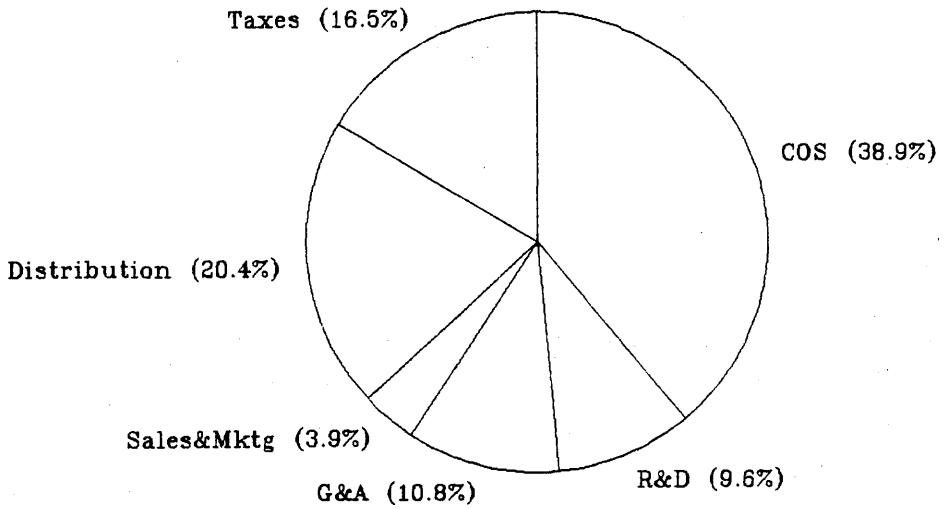


The percent of total on the 1-2-3 chart cannot be deleted or changed (for example, to actual values as on the Lisa chart). On the Lisa you have complete editing capabilities of the legends and the chart itself including such customizations as exploding out a wedge and adding annotations.

IBM PC running 1-2-3

The Manufacturing Company

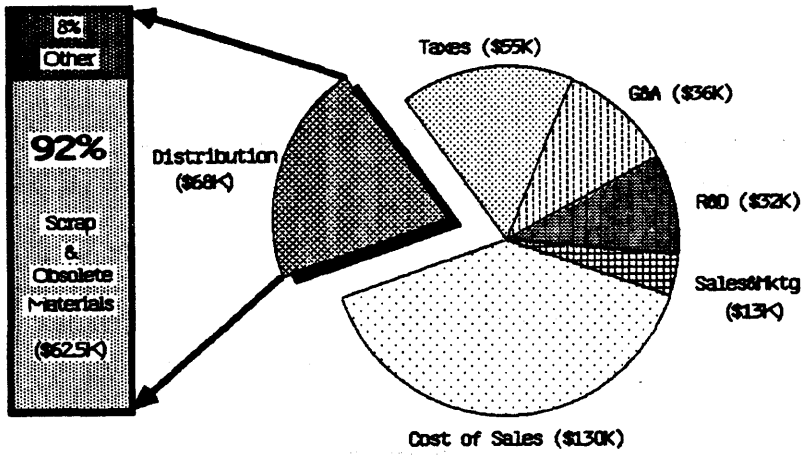
1983 Expenses by Category



Lisa

The Manufacturing Company

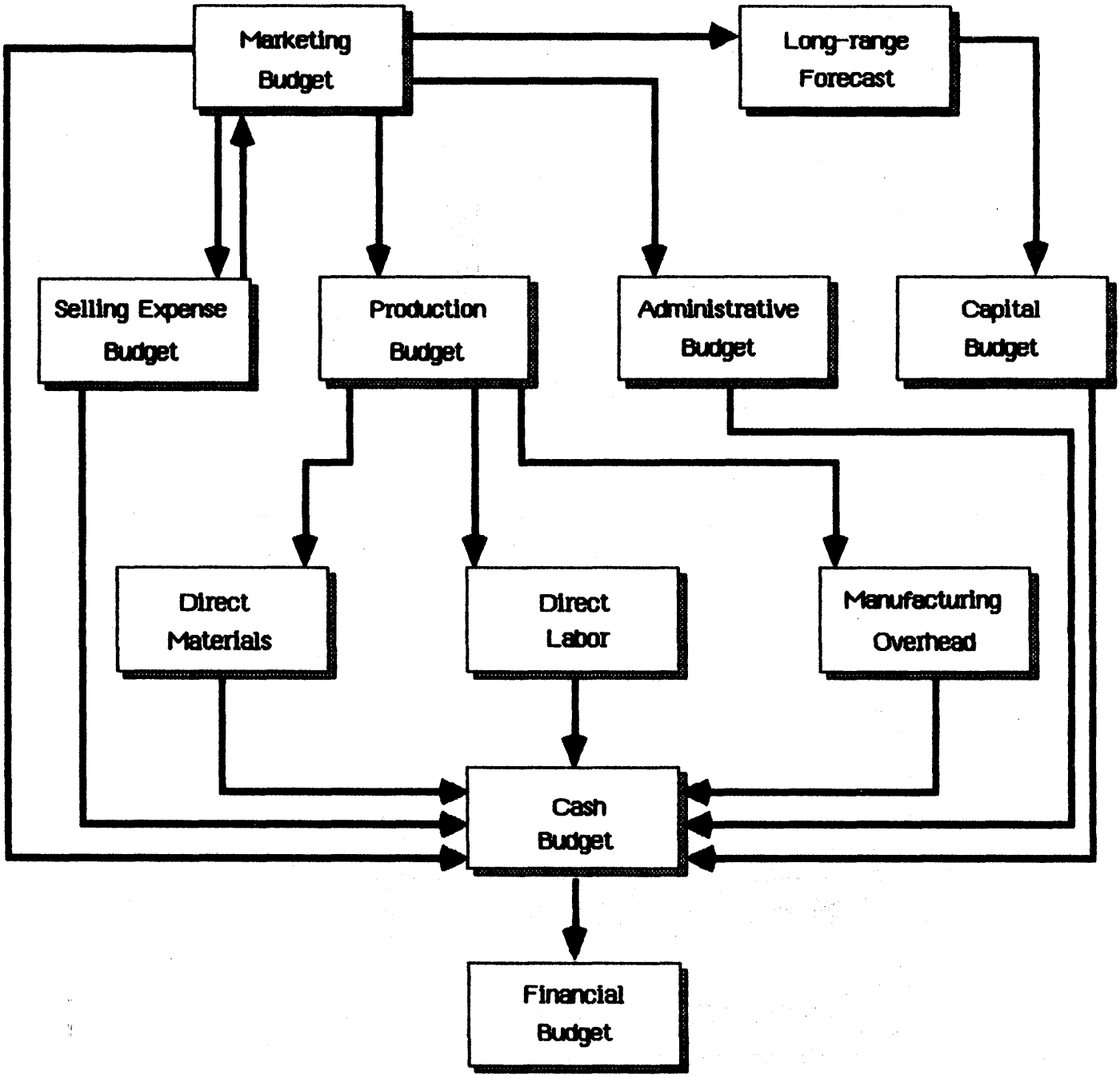
1983 Expenses by Category



Prepared by: Financial Planning Dept.

This example was done on the Lisa using LisaDraw, for which there is no counterpart on the IBM PC running 1-2-3.

The Budgeting System



IBM® PC-XT with VisiOn™

- VisiOn is text oriented and has limited graphic capabilities:
  - Graphic interface applications (e.g., LisaProject) are impossible under VisiOn.
- The Lisa solution costs $800 less than the IBM/VisiOn solution, is more powerful, and comes from one vendor.
- VisiOn applications cannot be developed on the IBM PC-XT.
- VisiOn's user interface is cumbersome:
  - No desktop manager (text only, no icons);
  - Four operations to resize windows;
  - Action first, object second is very error prone;
  - Two button mouse is confusing, needs a special pad, and requires seven times more area;
  - Menus require many levels of selection.
- VisiOn's printing capabilities are not defined; Lisa's revolutionary printing remains unmatched.
- The Lisa solution provides seven applications now, including data communications; VisiOn plans three.

Detailed Analysis and Examples

VisiOn is text oriented and has limited graphic capabilities.

- **Applications with graphical interfaces such as LisaDraw and LisaProject are not possible with the VisiOn solution.** Lisa's powerful graphics capabilities allow very fine detail to be represented clearly and free of distortion. With this technology, applications that depend heavily on graphics such as LisaDraw and LisaProject are not only possible, but have been implemented with tremendous success. These applications have proven to be extremely powerful and easy to use at the same time, a quality that has traditionally eluded software designers.

- **Performance of graphicly oriented applications is much faster on a Lisa than on VisiOn.** Lisa's MC68000 processor is twice as fast as IBM's 8088 and, to use this extra power efficiently, Lisa has a set of very fast graphic routines called QuickDraw that provide all of the generic graphics capabilities.

The Lisa solution costs $800 less than the IBM/VisiOn solution, is more powerful, and comes from one vendor.

- The Lisa Solution has a Suggested Retail Price of $8,490, the VisiOn Solution costs $9,313. See the Price/Feature Summary on page 50.

- **The Lisa has twice the computing power.** The Lisa uses the Motorola 68000, a 32 bit internal/16 bit external processor. The IBM PC-XT uses the Intel 8088, a 16 bit internal/8 bit external processor. Lisa's more powerful processor allows it to perform twice as much in any given time period.

- **The Lisa has twice the memory capacity of the IBM PC-XT running VisiOn.** The Lisa comes standard with one megabyte of memory. VisiOn recommends a memory size of 256K as a minimum but suggests that 512K be used for the system to perform well. Lisa's larger memory configuration allows more code and data to be kept in memory which significantly reduces the need for time consuming overhead such as swapping and overlaying. The result is higher performance.

- **The Lisa has more than twice the screen resolution.** Lisa's 720 x 364 bit mapped screen allows the observer to see finely detailed character fonts and graphic images exactly as they are printed. The IBM PC-XT handles only 640 x 200 pixels resulting in a per square inch resolution 1/3 that of the Lisa. Lisa's greater resolution enables it to have very clear character fonts down to 15 characters per inch, and graphics capabilities far superior to most personal computers including the IBM.

See the Lisa and VisiOn screen print-outs on pages 51 and 51.

- **The IBM PC-XT cannot handle VisiOn development.** A larger machine such as a VAX or MC68000 is required to develop applications for VisiOn. Lisa provides all of the development tools on the Lisa itself for Lisa developers. Ironically, the Lisa with Xenix or Unix is capable of running the VisiOn development system.

- **The Lisa solution comes from one vendor, the VisiOn solution comes from three.** One advantage of a single vendor is homogenous support. Another is the technological synergy: the Lisa hardware was designed and used with the Lisa user interface in mind and results in a technological solution that is truly integrated. The VisiOn solution requires the merging of three different vendors: IBM, VisiCorp, and the printer manufacturer.

VisiOn's user interface is cumbersome.

- **Lisa's desktop manager extends the graphical interface technology much farther.** Using Lisa's high resolution graphics display, detailed icons representing the physical objects delt with in an office environment are used to make all the basic desk management functions as lifelike as possible. Folders, pads of paper, documents, etc., are used exactly as they are in an office. For example, to move a document from one folder to another the document is selected by clicking the mouse button down, moved with the mouse, and left at its new location by releasing the button. This method is natural and, because of its lifelike quality, extremely easy to learn without being a nuisance once the techniques are mastered (as is usually the case with "user friendly" interfaces of the past). Lisa's window manager and desktop manager offer a complete graphical interface solution.

  VisiOn does not have a desktop manager like the Lisa. Rather, disk catalogs are displayed as lists and all file maintenance is performed using a special window which prompts for actions such as "copy" and "rename." For those who prefer this type of catalog representation, Lisa has two non-pictorial modes for displaying folder and file contents: alphabetical and chronological.

- **Lisa's window management is much more efficient and easy to use.** Lisa's windows can be instantly resized and/or moved by a quick mouse click and movement. VisiOn's window management is much more cumbersome, requiring four distinct operations every time a window is moved or resized (menu command is selected, window to be resized or moved is selected, upper left corner is selected, and lower right corner is selected).

  On Lisa, windows can be placed to the side such that only a portion of the window is visible, a valuable feature when many windows are open. VisiOn windows must remain within the boundary of the desktop (i.e. within the display area).

  The Lisa windows incorporate elevators which allow the window to be instantly placed anywhere in the document. The VisiOn windows can only be scrolled so that if the middle or end of a document is to be viewed, the

window must be scrolled past any intermediate data to get to that point.

For VisiOn, these limitations are very constraining and time consuming when multiple windows are being used at the same time and frequent window resizing, movement, and/or switching is required.

- **Errors are eliminated by having the object selected first.** Using the "object first, action second" methodology instead of the "action first, object second" methodology enabled the Lisa designers to remove illegal actions completely from the desktop and window environments. This is accomplished by greying (and not allowing the selection of) certain menu items that do not apply to the currently selected object (window, icon, folder, etc.). This technique also eliminates the need for help facilities since the user can easily see what he can and cannot do with a selected object by simply and quickly pulling down menus.

  VisiOn uses the "action first, object second" methodology. Since VisiOn does not know which object is to be operated on when the action is selected, it cannot remove options from the menus and inherently contains many error scenarios. In addition, once an action is selected it is virtually impossible to prevent the mouse from being clicked in illegal areas of the screen. The result is a lot of "beeping in complaint."

- **One way paths are nonexistent on the Lisa.** Since the action is selected last on the Lisa, predefined paths cannot occur. VisiOn's use of the action first methodology causes one way paths that must either be followed to completion or terminated with the "stop" command. Any other activities result in errors. (Lisa does not have or need a "stop" command).

- **Lisa's copying facility requires fewer steps and is quicker.** Using the Lisa, a copy is made by selecting data, copying onto the clipboard, selecting the insertion or replacement point, and inserting. Since the data selection operations are made with one mouse movement (click down, move, click up), the entire copy requires only four simple steps. In addition, while the data is residing on the clipboard, other tasks can be performed such as opening, closing and moving windows, or copying a different selection onto the clipboard. In other words the data on the clipboard can be ignored, replaced, or copied one or more times into any number of documents.

  With VisiOn, six distinct steps must be performed to execute a copy: 1) the transfer action is selected, 2) the source window is selected, 3) the starting point is selected, 4) the ending point is selected, 5) the destination window is selected, and 6) the insertion point is selected. All steps must be performed in sequence and correctly or VisiOn "beeps in complaint." During this entire operation the only actions that will not cause an error are scrolling and the selection of a stop command. Also, since windows cannot be opened during the copy, both the source and destination windows must be opened before the transfer action is initiated.

- **The VisiOn solution does not provide an undo facility like the Lisa.** On the Lisa, most mistakes can be undone in one simple and easy step. VisiOn has no such feature and the user is left to figure out what was changed and to reverse each of the steps taken to get to that point, a very time

consuming and frustrating task!

- **Lisa's one button mouse is easier to learn and use than VisiOn's two button mouse.** Experiments have shown that the use of a one button mouse becomes automatic (requiring minimal, if any, thought) much sooner and with significantly less effort than a two button mouse. To learn and use a one button mouse the user only needs to learn how to push the button down and release it. To learn and use a two button mouse the user must not only learn the above but must also learn to distinquish the right button from the left button while associating each with distinct activities. This added complexity introduces confusion into the learning process.

- **The VisiOn mouse requires a special pad, the Lisa mouse can be used on any desktop or pad.**

- **The Lisa mouse requires much less area than the VisiOn mouse.** The Lisa mouse only requires a 3 x 3 inch area, i.e. the mouse movement is scaled down proportional to the arrow movement on the screen. The VisiOn mouse movement is not scaled and therefore requires a 10 x 6.75 inch area. The Lisa mouse is more effective since less area has to be covered.

- **Lisa's pull down menu structure is simple yet extremely powerful and efficient.** With the use of pull down menus, all possible menu selections are instantly displayed only when requested. In addition, only the menu items for the currently active window are displayed. Using this technique only one menu bar is required which allows for more data presentation area. This method of menu selection has proven to be effective for both the naive and expert users.

  VisiOn's menus are hierachically structured resulting in many levels of selection, a time consuming task. Since they lack the pull down feature, the VisiOn menus must be displayed in a single bar which is scrolled to see all selections, another time consuming task. VisiOn also uses multiple menu bars, one main menu and one submenu for each window, which results in less area for viewing data. Hierarchical menu structures in general tend to be satisfactory for the naive user but inefficient for the expert user because of all the levels.

- **Lisa's high resolution display with smaller character fonts enables much more information to be displayed.** More information on the screen means more work can be done. For example, in LisaCalc the user sees 28 rows by 13 columns, each column 8 characters wide. In LisaTerminal the user can see 132 columns without horizontal scrolling.

VisiOn's printing capabilities are not defined; Lisa's revolutionary printing remains unmatched

- **Lisa's dot matrix printer is configured to print exactly what is seen on the screen.** This feature is very valuable when creating documents containing graphics and/or a variety of character typestyles. The Lisa can

display and print 11 basic typestyles which can be italicized, underlined, subscripted, superscripted, and bolded, and that are visually the same on both the display and on paper.

The Lisa solution provides seven applications now, including data communications; VisiOn plans three.

- **Lisa users can use seven applications now, VisiOn users will have only three.** The applications available now are a spreadsheet, a word processor, business graphics, free form graphics, project scheduling, list management, and data communications. There are also over 150 independent software developers currently working on a wide range of business oriented products for the Lisa. When VisiOn is released there will only be three applications (as currently planned by VisiCorp™): word processing, business graphics, and a spreadsheet.

VisiOn applications cannot be developed on the IBM PC-XT.

- **Lisa's development is done on the Lisa, VisiOn's requires a Vax or MC68000 with Unix.** The hardware cost to the Lisa developer is the price of the Lisa. The hardware cost to the VisiOn developer is the price of the Vax (from $50,000 to $250,000) plus the cost of the IBM PC-XT.

- **Lisa's toolkit will be priced at less than $1,200, VisiOn's costs $7,500.**

- **Lisa's toolkit performs most of the generic management tasks, VisiOn does not.** Lisa's toolkit handles everything that is generic to all applications (window management, memory management, mouse input, etc.) and calls the application program to handle application specific tasks. VisiOn's toolkit is simply a set of subroutines that must be managed by the application program. Consequently, Lisa's toolkit is much easier to use and results in an amazingly small amount of code needed for any application.

- **Lisa's toolkit ensures standardization of user applications.** Because the toolkit manages the generic functions by default, applications all use the same user interface unless explicitly overriden by the developer. A common user interface allows Lisa users to work with many different applications without relearning such activites as window manipulation, copying, deleting, and printing. The VisiOn toolkit is managed by the application which makes standardization much more difficult.

- **Lisa's toolkit protects applications from each other by managing memory itself, VisiOn lets the applications themselves manage memory.** The result is that VisiOn applications will have a much higher probability of destroying other applications and data in memory. Lisa applications cannot

destroy other applications or data under any circumstances.

Competitive Analysis Price/Feature Summary

IBM® PC-XT with VisiOn™

SUGGESTED RETAIL PRICE

Lisa Office System	
Lisa Office System	$6,995
Lisa Application Software, Apple Dot Matrix Printer, and Parallel Interface Card	1,495
	$8,490

IBM PC-XT with VisiOn	
IBM PC-XT	$4,995
384 KB RAM*	900
Graphics Monitor*	680
Graphics Monitor Card	244
Epson Dot Matrix Printer	695
Printer Interface Card	150
Printer Cable	45
VisiOn	495
VisiOn Mouse	250
VisiOn Graph	195
VisiOn Word	375
VisiOn Calc	395
	$9,313

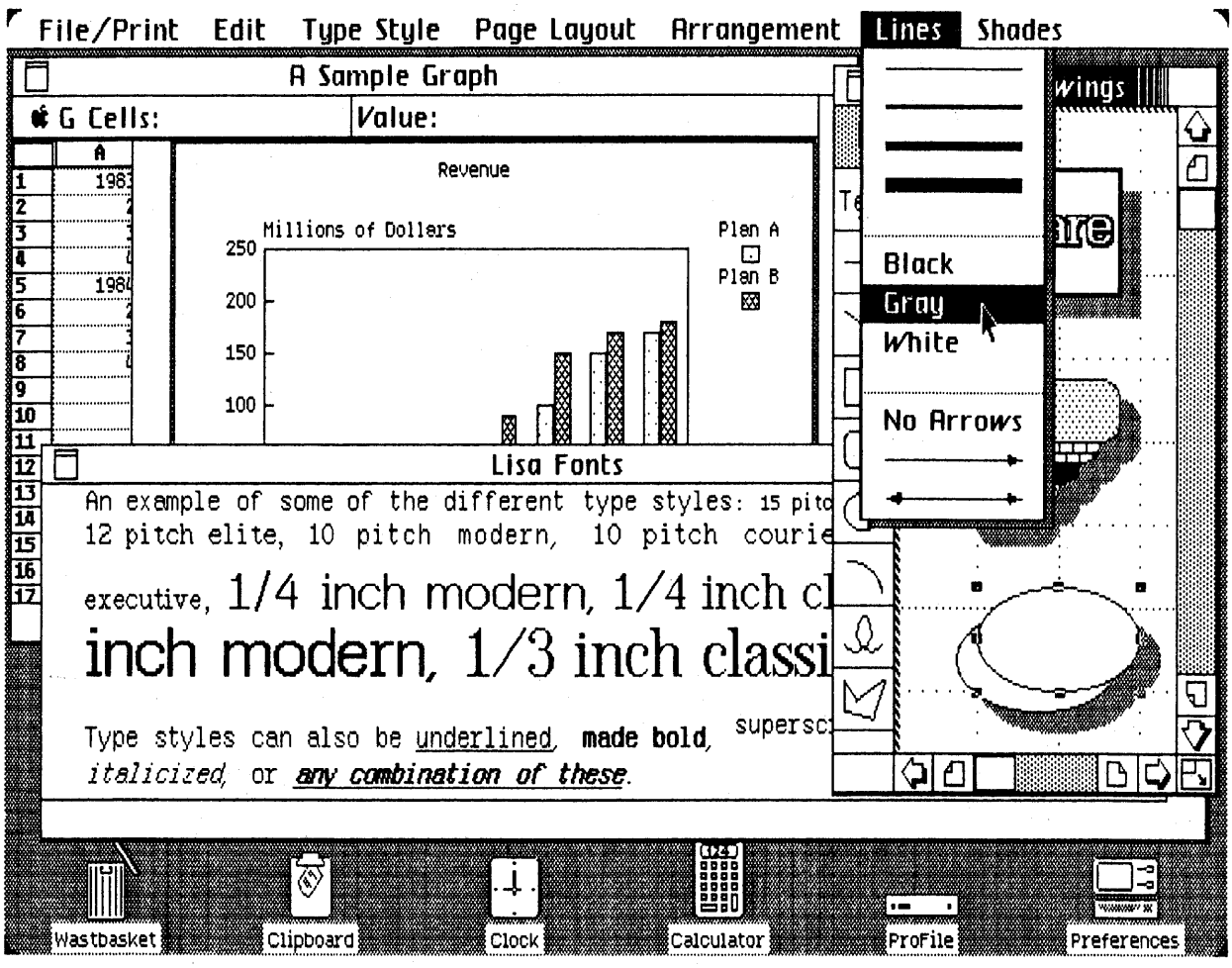
Features:	**Lisa Office System**	**IBM PC-XT with VisiOn**
Main Memory	1000 KB	512 KB
Floppy Disk Storage	1700 KB	360 KB
Hard Disk Storage	5 MB	10 MB
Monitor Resolution	720 x 364	640 x 200
Printer Resolution	160 x 144	144 x 120
Processor	32/16 Bit	16/8 Bit
Office Solutions	Word Processing Electronic Spreadsheet Business Graphics List Management Free Form Graphics Project Scheduling	Word Processing Electronic Spreedsheet Business Graphics

* From third party suppliers the RAM costs $700 and the moniter (B&W) costs $250 which still results in the Lisa costing $300 less.

Competitive Analysis Screen Comparison

IBM® PC-XT with VisiOn™

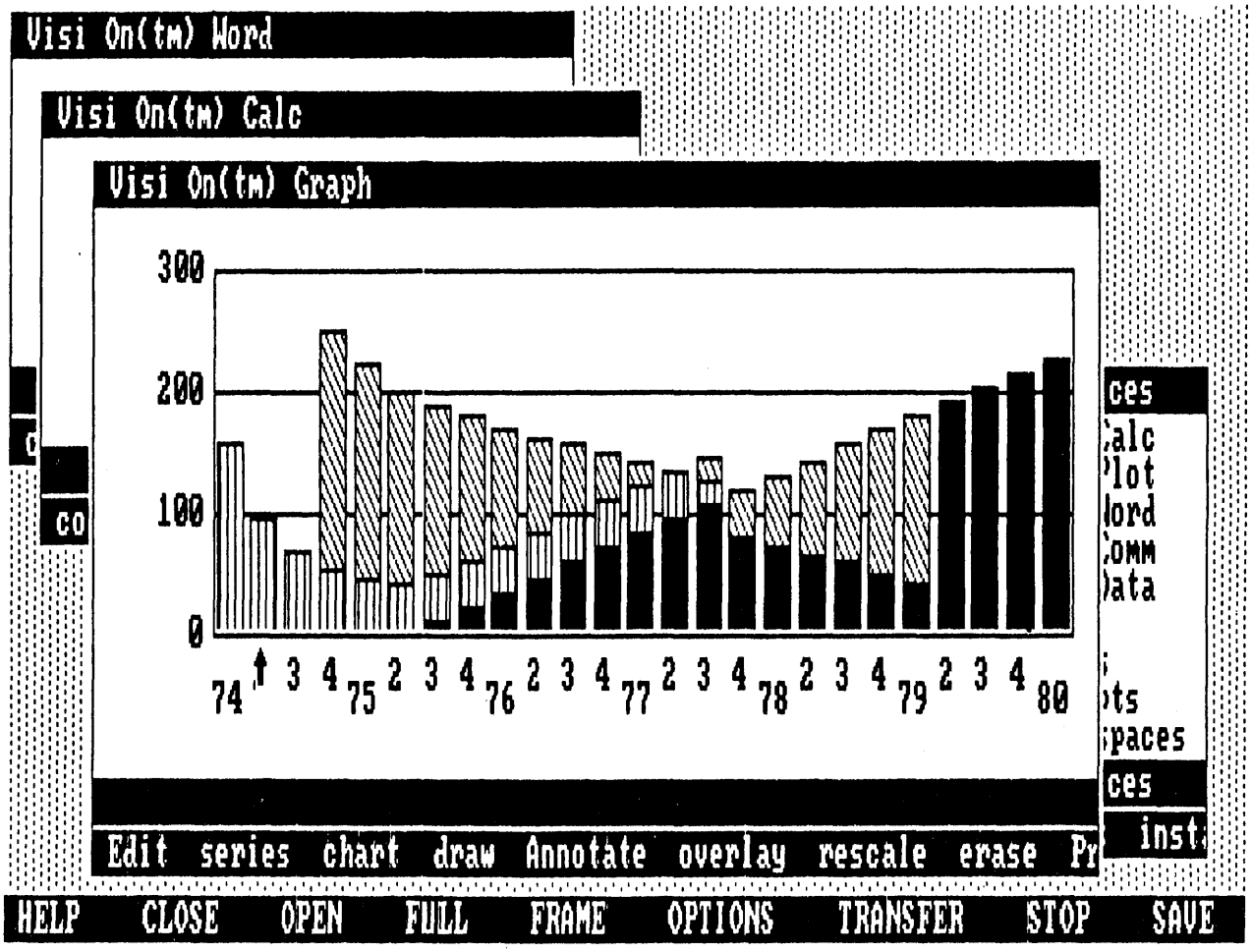
Lisa Screen



Competitive Analysis Screen Comparison

IBM® PC-XT with VisiOn™

VisiOn Screen



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.

APPLECARE CARRY-IN SERVICE NOW AVAILABLE FOR LISA!

AppleCare Carry-In Service is NOW available for Lisa!

AppleCare Product Number:	SC60014 *
Suggested Retail Price:	$360.00/per year
Dealer Cost:	$234.00/per year

In order to sell AppleCare Carry-In Service coverage for Lisa (or any other product not currently listed on the AppleCare form), you should write the product description and AppleCare product number on one of the blank lines provided at the bottom of the form.

You can order AppleCare Forms and AppleCare Take-One Flyers free of charge through your Apple Regional Support Center, Customer Support Department under the following part numbers:

AppleCare Forms/10 per pack A2F0109

AppleCare Take-One Flyers/100 per pack..... A2F0122

* This part number applies to the Lisa CPU only. To cover the ProFile[tm] with AppleCare, you must also order part number A3G0022.

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 enstalled 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

Demo Guidelines

Here are some general guidelines for giving demos or presentations. One-person and two-person demos, as well as set-up considerations, will be discussed.

Set-Up

Two-Person, Using Projection System or Monitors

• Screen Visibility

The person speaking must be able to see either the Lisa screen itself or the projection screen without going through major contortions. Also, the mouser should sit where he/she is not blocking someone's view of the projection screen.

• People Visibility

The audience should be able to see the mouser and preferably the Lisa Screen. It is better if the mouse is towards the audience. If you are using a video camera to display the screen, keep the video camera out of the way as much as possible.

• Practice

The mouser and the presenter should practice the demo together as much as possible. Each practice session should be treated as if it were a real presentation especially when something goes wrong.

One-Person, Using Projection System or Monitors

• Be Visible

Do the demo standing. You should also elevate the Lisa to a usable level as you stand in front of it. (See 'Elevate the Lisa' below.)

One-Person, Without Projection System

• Elevate the Lisa

When you are doing the demo with a lot of people just standing around your Lisa you need to make it possible for those in the second row to see and hear. The best way to let them see is to elevate the Lisa. Split level stands work well where the Lisa is about 5 feet high and the keyboard and mouse are 3-1/2 feet high. An alternative is to use the Lisa at normal table height but have chairs for three or four people which allows another five or six to stand and still see.

• Speak Up

You must remember that there are more people listening than the person right next to you. Speak loud enough for all to hear and address your comments to everyone.

• Don't Block the Screen

Don't stand right in front of the Lisa because nobody else will be able to see the screen. You may be more comfortable standing slightly sideways and off to one side so you can see both the screen and the audience.

The Demos Themselves

General

• Have a Purpose

Your demo should have some purpose or context. Don't show a feature just for the sake of showing it or because it is 'hot'.

• Make Large Changes

When you make a change in a particular document, make a large change. Don't move a word, move a paragraph. Don't change a number from 4 to 6 change it from 4 to 20, etc.

• Communicate Concepts

Generally, one is not trying to teach someone how to use Lisa. We have found it best to just give them an idea of what Lisa can do. This must be tempered somewhat though because you don't want to do things which are so complex you lose your audience. Get across ideas but do it in such a way as to make your audience think "Wow! That's so easy. I could do that!". A good rule of thumb is "Tell your audience what you are going to show, show it, tell your audience what they just saw".

• Stress Integration

Stress integration of the the user interface (one does things the same way in all applications), in addition to integration of the applications . Cut and paste or copy and paste shows very well.

• Show Multiple Documents

The ability to easily display multiple documents is certainly a valuable feature. But also show how quickly and easily one can move between different documents.

• Use Common Terms

Since many audiences will be non-technical, technical terms are lost on them. Replace them with something that our typical user can understand. Replace "1 megabyte" with "1 million characters" and "file" with "document", etc. We have also found that a lot of people don't understand the term "icon". Many people can better understand "object", "symbol" or "picture".

• Don't Waste Time

Powering off the Lisa takes a long time. So don't do it during a demo. If you insist on showing how easy it is to turn the Lisa off or if you want to take the Lisa apart, do it at the end of the demo.

If you are going to throw something away during the demo, first throw it away when you are setting up for the demo. Then retrieve it from the Wastebasket which leaves the Wastebasket empty. Now, when you actually throw the document away in the demonstration, it will happen very quickly.

Also, be sure to pre-load ALL DOCUMENTS, by opening and then closing each one which is to be used in the demonstration. They will ALL load more quickly in the actual demo if you pre-load.

Finally, try not to show a feature more than once. There are always plenty of new things to show.

• Practice

When doing two-person demos don't ad lib or vary from your prepared script. Practice the script ahead of time and then stick to it.

• Don't Confuse Your Audience

Don't do something without explaining what you are going to do. Remember that most of the audience cannot see the mouser, let alone the mouse. For example, do not resize folders or scroll unless you are specifically showing those features. This loses people quickly. In preparing for the demo you should be sure your windows are the right size and in the correct location.

• Repeat Questions

When the audience is large, repeat all questions for the rest of the audience to hear.

Two-Person, Using Projection System or Monitors

• Practice and Pace

When doing two-person demos, it is very important to be familiar with your partner's pace and style. This is only achieved with practice. Usually the speaker should control the pace. If the mouser gets ahead of the speaker, wait for him/her. It is very important to be synchronized.

• Prepare Comments Ahead of Time

When opening a new document the speaker should have some prepared comments to fill the gap while the application is being loaded. Keep an eye on the screen and when the document is ready, finish your comment and move right into the application. It is more effective to use your time showing the applications than talking.

• Pause on Menu Options

The mouser should allow the audience time to read menus and specific options chosen. Pause as soon as you open a menu, move to your choice, pause again, and then release mouse button. If you do things at the normal pace, it looks to the audience like you're really zooming around and they get the feeling that they could never do that themselves. When you really slow it down they can see how easy it is. This applies to one-person demos as well.

• Don't Double Click

When you use double clicks it looks like a document just opens magically. Use the menus to open and close documents unless you are specifically demonstrating double clicks.

• Emphasize Mouser's Actions

If the room is rather dark the audience can't see the mouser very well. Stress how easily the mouser is doing things and how he/she is only using the mouse except when actually entering numbers or text.

What to do if something goes wrong

• Have Time Filler Ready

If a document is slow in loading the speaker needs to fill the time with some commentary. You should have ready at all times in the back of your mind a whole

collection of 20-second comments. If you finish your prepared filler and the document is not ready, immediately pull out one of your emergency fillers. You can talk about the mouse, the menus, integration of the user interface, cut and paste, the desktop, etc. Then when the document is finally ready, carry on with your prepared demonstration.

• Move Ahead if Mouser has Problems

If the mouser is having trouble doing something, it is best to just move on. Skip that feature. For example, let's say you are going to show copy and paste between two applications. You get into the second application and when the mouser chooses Paste, nothing happens (he/she forgot to copy first). DON'T make the mouser go back and do it again. Just move on! Enter the numbers one at a time if it's LisaCalc, or draw something from scratch if its LisaDraw, or whatever. A good rule of thumb is to keep moving ahead, don't ever back up.

The corollary for the mouser is, what if the speaker forgets to mention something you were going to show? Well, then skip it. Don't go ahead and do it because nobody will know what you are doing.

• Prompt Mouser

If the mouser just gets lost, the presenter can help by saying, "Now (mouser) is going to ...". This is an effective way of prompting without being obvious.

• Acknowledge Dialogue Boxes

What do you do if there is some problem and you get an unexpected dialogue? The worst thing you can do is pretend nothing has happened. Actually this is just one more benefit and most people will quickly appreciate how friendly Lisa is in this respect in comparison to most personal computers. The mouser should leave it up there long enough for people to read it and the speaker should explain what has happened and this is Lisa's way of telling me IN ENGLISH. Then just move on to whatever is next. Skip that application or feature if need be. Don't try to do that feature again.

• System Hangs

What if Lisa completely hangs? If the situation permits, you should now just explain "I'm sorry, but we seem to be having some problems continuing and the demonstration is now over". Don't try to reboot and continue with the demo. Instead, move on to the next thing in the program. Sometimes you don't have that option and you must re-boot and try to start again. Just be prepared to receive several dialogue boxes. Also, there is always the possibility that the software on the ProFile will be damaged. You just have to be ready for anything when you reboot.

One-Person, Using Projection System or Monitors

• Stress How You Do Things

If your audience can't see what you're doing (the room is darkened) stress HOW you are doing things, not just what it is you are doing.

• Stick to the Script

As with two-person demos, the demo is most effective if you stick to your script and try to have people hold their questions until the end of the demo.

One-Person, Without Projection

- **Speak Up**

Remember that you are speaking to a whole group of people, not just one or two. Address your comments to everyone and speak loud enough for all to hear.

- **Have Demo Prepared But Be Flexible**

Even in this environment, it is good to set up for a specific demo and then do it. But unlike the other two types of demos, you want this one to be open and you should encourage questions and interaction. We have thought of two ways of handling this:

1) Start with your prepared demo, but stay flexible and feel free to vary from your prepared demo to show features people are specifically interested in. As the questions wane, pick up where you left off in your script. ...or...

2) Try to go through your demo start to finish with as few interruptions as possible and then go back to the specific features individuals are interested in. This way you avoid boring some people while you go into tremendous depth in an area of one individual's interest.

- **Avoid Technical Discussions**

During a demo you should avoid getting into technical discussions with one person. Give them one or two answers and then say, "Why don't you and I continue this discussion afterwards."

- **Be Ready to Show Anything**

Even if you are not scheduled to show all of the applications have all six preloaded just in case you need to show them.

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:

- Sales Literature
- Point-of-Sale Display
- Seminar Package
- Launch Package
- 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 Systsems 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, A6C0005

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, A6RB101

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, A6C0350

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, A6C0351

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.

Revisions to the February 15, 1984
Lisa Products Confidential Dealer Price List

*** New Lisa Products Added To Price List**

Product	Description	Page No.
A6F2003	Lisa™ 2 Hardware Data Sheet	4
A6F2002	Lisa 2 System Overview Data Sheet	4

*** Price Changes Made to Price List**

A6P1002	Lisa 2/10 Upgrade Kit	2
A6P0013	Lisa Dealer Demo Upgrade Kit	2

LISA PRODUCTS CONFIDENTIAL DEALER PRICE LIST

FEBRUARY 15, 1984

apple computer

	Product	Description	Notes	Sugg. Retail Price	Single and Multiple Quantities 1-3	4-9	10-19	20-39	40-79	80 +
	Lisa Office Systems			(Each)						
†	A6P0010	Lisa 2	1	3495.00	2410.00	2270.00	2270.00	2270.00	2270.00	2270.00
†	A6P0011	Lisa 2/5	2	4495.00	3100.00	2920.00	2920.00	2920.00	2920.00	2920.00
†	A6P0012	Lisa 2/10	3	5495.00	3790.00	3570.00	3570.00	3570.00	3570.00	3570.00
	A6P0014	Lisa 2/5 Demo System (one per dealer location)	4	N/A	5285.00	N/A	N/A	N/A	N/A	N/A
	A6P0015	Lisa 2/10 Demo System (one per dealer location)	4	N/A	5785.00	N/A	N/A	N/A	N/A	N/A
	Lisa Disk Drive and Accessory									
†	A9M0005	ProFile™ Disk Drive	5	1895.00	1195.00	1167.00	1139.00	1104.00	1067.00	1043.00
	A6C0005	ProFile™ Accessory Kit for Lisa	5	N/A	36.00	36.00	36.00	36.00	36.00	36.00
	Lisa Printers and Accessories									
†	A6P2028	Daisy Wheel Printer w/Lisa Accessory Kit		2195.00	1405.00	1361.00	1328.00	1310.00	1293.00	1275.00
	A6C0351	DWP Accessory Kit for Lisa		N/A	21.00	20.00	19.00	18.00	17.00	16.00
†	A2M0072	DWP Tractor Forms Feeder		279.00	184.00	179.00	174.00	168.00	163.00	157.00
	A2M0074	Multi-Strike Ribbon (DWP) (6/pack)		10.50 ea	40.00	39.00	38.00	37.00	36.00	36.00
	A2M0081	Printwheel, Boldface (6/box)		13.75 ea	53.00	51.00	50.00	48.00	47.00	47.00
	A2M0079	Printwheel, Courier 10 (6/box)		13.75 ea	53.00	51.00	50.00	48.00	47.00	47.00
	A2M0080	Printwheel, Gothic 15 (6/box)		13.75 ea	53.00	51.00	50.00	48.00	47.00	47.00
	A2M0078	Printwheel, Prestige Elite (6/box)		13.75 ea	53.00	51.00	50.00	48.00	47.00	47.00
	A9G0324	Apple Modern 10/12 PS Printwheel (6/box)		16.50 ea	64.00	62.00	60.00	58.00	56.00	54.00
	A9G0325	Apple Modern 10/12 Additional Characters Printwheel (6/box)		16.50 ea	64.00	62.00	60.00	58.00	56.00	54.00
	A9G0326	Apple Modern Italics/PS Printwheel (6/box)		16.50 ea	64.00	62.00	60.00	58.00	56.00	54.00
	A2M0077	Cloth Ribbon (DMP) (6/pack)		10.50 ea	42.00	40.00	39.00	38.00	37.00	36.00
†	A6P2025	Imagewriter w/Lisa Accessory Kit		595.00	393.00	393.00	393.00	393.00	393.00	393.00
	A6C0352	Imagewriter Accessory Kit for Lisa		N/A	38.00	38.00	38.00	38.00	38.00	38.00

Notes:

* - New Product.

† - Product eligible for floorplanning.

1 - Includes (1) Lisa 2 512K System, Lisa 2 Accessory Kit, and Macintosh Operating System. Available March 1984.

2 - Includes (1) Lisa 2 512K System, Lisa 2 Accessory Kit, ProFile, and ProFile Accessory Kit for Lisa. Available February 1984.

3 - Includes (1) Lisa 2/10 512K System and Lisa 2/10 Accessory Kit. Available March 1984.

4 - Prerequisite for new Personal Office Systems Dealers.

5 - 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.

2/15/84

	Product	Description	Notes	Sugg. Retail Price	Single and Multiple Quantities 1-3	4-9	10-19	20-39	40-79	80 +
	Interface Cards			(Each)						
	A6BB101	Parallel Interface Card		195.00	127.00	121.00	121.00	121.00	121.00	121.00
	Lisa Datacommunications Products									
	A9M0313	Cluster Controller , BSC-3 ports		4500.00	2847.00	2669.00	2624.00	2579.00	2534.00	2490.00
	A9M0317	Cluster Controller, BSC-7 ports		7000.00	4238.00	3959.00	3890.00	3820.00	3750.00	3681.00
	A9M0323	Cluster Controller, SNA/SDLC-7 ports		4500.00	2847.00	2669.00	2624.00	2579.00	2534.00	2490.00
	A9M0327	Cluster Controller, SNA/SDLC-3 ports		7000.00	4238.00	3959.00	3890.00	3820.00	3750.00	3681.00
	A6C0353	Cluster Controller Accessory Kit for Lisa		N/A	33.00	33.00	33.00	33.00	33.00	33.00
	Lisa Miscellaneous Accessories									
	A6P1001	Lisa 2/5 Upgrade Kit	1	N/A	200.00	200.00	200.00	200.00	200.00	200.00
†	A6P1002	Lisa 2/10 Upgrade Kit	1	2495.00	2072.00	2072.00	2072.00	2072.00	2072.00	2072.00
	A6P0013	Lisa Dealer Demo Upgrade Kit		N/A	230.00	230.00	230.00	230.00	230.00	230.00
†	A6B0204	512K Add-On Memory Board		1495.00	1030.00	970.00	970.00	970.00	970.00	970.00
	A9D0001	Fileware Blank Diskettes	2	60.00	43.00	42.00	41.00	40.00	40.00	40.00
	M0500	Apple 3.5" Blank Disk Box (box of 10)	2	49.00	29.00	29.00	29.00	29.00	29.00	29.00

Notes:
* - New Product.
1 - Available Spring 1984.

	Product	Description	Notes	Sugg. Retail Price	Single Qty. Price	Master Pack Qty.	Master Pack Price			
Lisa Software				(Each)						
†	A6D0203	BASIC-Plus (Microdisk)		295.00	180.00	4	175.00			
†	A6D0204	COBOL (Microdisk)		995.00	605.00	4	585.00			
†	A6D0201	Pascal (Microdisk)		595.00	365.00	4	350.00			
†	A6D0270	Lisa Office System (Microdisk)		295.00	190.00	6	175.00			
†	A6D0251	LisaCalc (Microdisk)		295.00	190.00	6	175.00			
†	A6D0252	LisaDraw (Microdisk)		395.00	255.00	6	235.00			
†	A6D0253	LisaGraph (Microdisk)		295.00	190.00	6	175.00			
	A6D0255	LisaList (Microdisk)		195.00	125.00	6	115.00			
†	A6D0256	LisaProject (Microdisk)		395.00	255.00	6	235.00			
†	A6D0254	LisaWrite (Microdisk)		295.00	190.00	6	175.00			
†	A6D0257	LisaTerminal (Microdisk)		295.00	190.00	6	175.00			
					1-3	4-9	10-19	20-39	40-79	80 +
†	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
†	A6D0101	Pascal	1	595.00	363.00	351.00	351.00	351.00	351.00	351.00
†	A6D0157	LisaTerminal	1	295.00	180.00	174.00	174.00	174.00	174.00	174.00
Lisa Reference Manuals										
	A6L0112	BASIC-Plus Manual Set		45.00 set	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0113	COBOL Manual Set		95.00 set	57.00	57.00	57.00	57.00	57.00	57.00
	A6L0101	Hardware Reference Guide		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0103	Owner's Guide		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0111	Pascal Manual Set		95.00 set	57.00	57.00	57.00	57.00	57.00	57.00
	A6L0141	LisaCalc Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0142	LisaDraw Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0143	LisaGraph Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0145	LisaList Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0146	LisaProject Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0147	LisaTerminal Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0144	LisaWrite Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00

Notes:

* - New Product.

† - Product eligible for floorplanning.

1 - To be used with Lisa 1 system.

Product	Description	Notes	Sugg. Retail Price	Single and Multiple Quantities 1-3	4-9	10-19	20-39	40-79	80 +
Literature			(Each)						
A7L0002	Apple Credit Plan Application (100/pack)		N/A	10.00	10.00	10.00	10.00	10.00	10.00
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
A9G0200	Guide to Personal Computers In Education (25/pack)		1.95 ea.	20.00	20.00	20.00	20.00	20.00	20.00
A6F0023	Lisa Intro Cards (25/pack)		N/C	N/C	N/C	N/C	N/C	N/C	N/C
A6L0013	Lisa Poster (2/Tube)		N/C	N/C	N/C	N/C	N/C	N/C	N/C
Data Sheets									
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
A6F0010	Daisy Wheel Printer 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
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
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
A6F0012	LisaWrite Data Sheet (25/pack)		N/A	3.75	3.75	3.75	3.75	3.75	3.75
A6F0020	Parallel Interface Card (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
A6F0009	ProFile Data Sheet (25/pack)		N/A	3.75	3.75	3.75	3.75	3.75	3.75
A6F2003	**Lisa 2 Hardware Data Sheet (25/pack)**	*	**N/A**	**2.50**	**2.50**	**2.50**	**2.50**	**2.50**	**2.50**
A6F2002	**Lisa 2 System Overview Data Sheet (25/pack)**	*	**N/A**	**2.50**	**2.50**	**2.50**	**2.50**	**2.50**	**2.50**
AppleCare Carry-In Service for Lisa Products									
SC60021	Lisa 2 System		210.00/yr	132.00/yr					
SC60022	Lisa 2/10 System		360.00/yr	234.00/yr					
SC30011	ProFile Disk Drive		150.00/yr	98.00/yr					
SC30010	Daisy Wheel Printer		150.00/yr	98.00/yr					
SC20005	Dot Matrix Printer		60.00/yr	39.00/yr					
SC20019	Imagewriter Dot Matrix Printer		48.00/yr.	31.00/yr.					
A2F0152	AppleCare Carry-In Service Registration Form (25/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

This price list supercedes all previous price lists.
Price Lists are subject to change without notice.
Products subject to discontinuation without notice.
Quantity prices apply to single delivery, single location.

Notes:
* - New Product

2/15/84

Revisions to the February 15, 1984
Macintosh Products Confidential Dealer Price List

*** Price and Part Number Changes Made to Price List**

Product	Description	Page No.
M0120	Macintosh™ Numeric Keypad	1
M0500	Macintosh Apple 3.5" Blank Disk Box	1

MACINTOSH PRODUCTS CONFIDENTIAL DEALER PRICE LIST

FEBRUARY 15, 1984

apple computer

Product	Description	Notes	Sugg. Retail Price	Single and Multiple Quantities 1-3	4-9	10-19	20-39	40-79	80+
Macintosh Systems			(Each)						
† M1003	Macintosh® Personal Computer	1	2495.00	1645.00	1645.00	1645.00	1645.00	1645.00	1645.00
† M1002	Macintosh Intro System (one per dealer location)	2-3	N/A	2123.00	N/A	N/A	N/A	N/A	N/A
† M1103	Macintosh Starter Kit	3	N/A	395.00	N/A	N/A	N/A	N/A	N/A
† M1004	Macintosh Personal Computer with Imagewriter Printer	4	2990.00	1973.00	1973.00	1973.00	1973.00	1973.00	1973.00
Macintosh Printers and Accessories									
† M0151	Imagewriter w/Macintosh Accessory Kit		595.00	393.00	393.00	393.00	393.00	393.00	393.00
M0150	Macintosh Imagewriter Accessory Kit		N/A	38.00	38.00	38.00	38.00	38.00	38.00
Macintosh Miscellaneous Accessories									
M0200	Macintosh Carrying Case		99.00	65.00	65.00	65.00	65.00	65.00	65.00
M0120	Macintosh Numeric Keypad		99.95	65.00	65.00	65.00	65.00	65.00	65.00
M0500	Macintosh Apple 3.5" Blank Disk Box (box of 10)		49.00	29.00	29.00	29.00	29.00	29.00	29.00
Macintosh Software									
M0520	MacWrite/MacPaint		195.00	117.00	117.00	117.00	117.00	117.00	117.00
Macintosh Reference Manuals									
M1500	Macintosh Owner's Manual (12/pk) (min. order 1 pack)		9.95	71.40	71.40	71.40	71.40	71.40	71.40

Notes on page 2

Product	Description	Notes	Sugg. Retail Price	Single and Multiple Quantities 1-3	4-9	10-19	20-39	40-79	80+
Macintosh Literature									
M1100	Macintosh Product Brochure (25 pk; min. order 2 pks.)		N/A	6.25/pk	N/A	N/A	N/A	N/A	N/A
M1101	Macintosh Take-One Flyer (25/pk; min. order 2 pks.)		N/A	2.50/pk	N/A	N/A	N/A	N/A	N/A
AppleCare Carry-In Service									
SC70020	Macintosh Personal Computer		84.00/yr	54.00/yr					
SC70026	Macintosh Numeric Keypad		18.00/yr	12.00/yr					

Notes:

† - Products eligible for floorplanning.

1 - Includes Macintosh Personal Computer and MacWrite/MacPaint software.

2 - Includes Macintosh Personal Computer, Imagewriter with Macintosh Accessory Kit, Macintosh Numeric Keypad, Macintosh Carrying Case, and MacWrite/MacPaint software.

3 - In order to support the Macintosh Personal Computer, the purchase of these products are prerequisites for authorized Macintosh dealers.

4 - Includes Macintosh Personal Computer, Imagewriter Printer with Macintosh Accessory Kit, and MacWrite/MacPaint software.

Prices are subject to change without notice.
Products subject to discontinuation without notice.
Quantity prices apply to single delivery, single location.

Revisions to the January 24, 1984
Personal Office Systems Products Confidential Dealer Price List

*** New Lisa Products Added To Price List**

Product	Description	Page No.
A6P0010	Lisa™ 2	1
A6P0011	Lisa 2/5	1
A6P0012	Lisa 2/10	1
A6P0014	Lisa 2/5 Demo System	1
A6P0015	Lisa 2/10 Demo System	1
A6P1001	Lisa 2/5 Upgrade Kit	2
A6P1002	Lisa 2/10 Upgrade Kit	2
A6P0013	Lisa Dealer Demo Upgrade	2
A6B0204	512K Add-On Memory Board	2
A6D0203	BASIC-Plus Microdisk	3
A6D0204	COBOL " "	3
A6D0201	Pascal " "	3
A6D0251	LisaCalc " "	3
A6D0252	LisaDraw " "	3
A6D0253	LisaGraph " "	3
A6D0255	LisaList " "	3
A6D0256	Lisa Project " "	3
A6D0254	LisaWrite " "	3
A6D0257	LisaTerminal " "	3

*** Price and Part Number Changes Made To Price List**

A9M0005	ProFile™ Disk Drive	1
A6P2028	Daisy Wheel Printer	1
A6P2025	Imagewriter Dot Matrix Printer	1

APPLE PERSONAL OFFICE SYSTEMS PRODUCTS

CONFIDENTIAL DEALER PRICE LIST

apple computer

JANUARY 15, 1984

	Product	Description	Notes	Sugg. Retail Price	Single and Multiple Quantities 1-3	4-9	10-19	20-39	40-79	80 +
	Lisa Office Systems			(Each)						
†	**A6P0010**	**Lisa 2**	***1**	**3495.00**	**2410.00**	**2270.00**	**2270.00**	**2270.00**	**2270.00**	**2270.00**
†	**A6P0011**	**Lisa 2/5**	***2**	**4495.00**	**3100.00**	**2920.00**	**2920.00**	**2920.00**	**2920.00**	**2920.00**
†	**A6P0012**	**Lisa 2/10**	***3**	**5495.00**	**3790.00**	**3570.00**	**3570.00**	**3570.00**	**3570.00**	**3570.00**
	A6P0014	**Lisa 2/5 Demo System (one per dealer location)**	*****	**N/A**	**5285.00**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
	A6P0015	**Lisa 2/10 Demo System (one per dealer location)**	*****	**N/A**	**5785.00**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
	Lisa Disk Drive and Accessory									
†	A9M0005	ProFile™ Disk Drive	4	1895.00	1195.00	1167.00	1139.00	1104.00	1067.00	1043.00
	A6C0005	ProFile™ Accessory Kit for Lisa	4	N/A	36.00	36.00	36.00	36.00	36.00	36.00
	Lisa Printers and Accessories									
†	A6P2028	Daisy Wheel Printer w/Lisa Accessory Kit		2195.00	1405.00	1361.00	1328.00	1310.00	1293.00	1275.00
	A6C0351	DWP Accessory Kit for Lisa		N/A	21.00	20.00	19.00	18.00	17.00	16.00
†	A2M0072	DWP Tractor Forms Feeder		279.00	184.00	179.00	174.00	168.00	163.00	157.00
	A2M0074	Multi-Strike Ribbon (DWP) (6/pack)		10.50 ea.	40.00	39.00	38.00	37.00	36.00	36.00
	A2M0081	Printwheel, Boldface (6/box)		13.75 ea.	53.00	51.00	50.00	48.00	47.00	47.00
	A2M0079	Printwheel, Courier 10 (6/box)		13.75 ea.	53.00	51.00	50.00	48.00	47.00	47.00
	A2M0080	Printwheel, Gothic 15 (6/box)		13.75 ea.	53.00	51.00	50.00	48.00	47.00	47.00
	A2M0078	Printwheel, Prestige Elite (6/box)		13.75 ea.	53.00	51.00	50.00	48.00	47.00	47.00
	A9G0324	Apple Modern 10/12 PS Printwheel (6/box)		16.50 ea.	64.00	62.00	60.00	58.00	56.00	54.00
	A9G0325	Apple Modern 10/12 Additional Characters Printwheel (6/box)		16.50 ea.	64.00	62.00	60.00	58.00	56.00	54.00
	A9G0326	Apple Modern Italics/PS Printwheel (6/box)		16.50 ea.	64.00	62.00	60.00	58.00	56.00	54.00
	A2M0077	Cloth Ribbon (DMP) (6/pack)		10.50 ea.	42.00	40.00	39.00	38.00	37.00	36.00
†	A6P2025	Imagewriter w/Lisa Accessory Kit		595.00	393.00	393.00	393.00	393.00	393.00	393.00
	A6C0352	Imagewriter Accessory Kit for Lisa		N/A	38.00	38.00	38.00	38.00	38.00	38.00

Notes:

* - New Product.

† - Product eligible for floorplanning.

1 - Includes (1) Lisa 2 512K System, Lisa 2 Accessory Kit, and Macintosh Operating System. Available March 1984.

2 - Includes (1) Lisa 2 512K System, Lisa 2 Accessory Kit, ProFile, and ProFile Accessory Kit for Lisa. Available February 1984.

3 - Includes (1) Lisa 2/10 512K System and Lisa 2/10 Accessory Kit. Available March 1984.

4 - 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.

Product	Description	Notes	Sugg. Retail Price	Single and Multiple Quantities 1-3	4-9	10-19	20-39	40-79	80 +
Interface Cards			(Each)						
A6BB101	Parallel Interface Card		195.00	127.00	121.00	121.00	121.00	121.00	121.00
Lisa Miscellaneous Accessories									
A6P1001	**Lisa 2/5 Ugrade Kit**	***1**	**N/A**	**200.00**	**200.00**	**200.00**	**200.00**	**200.00**	**200.00**
A6P1002	**Lisa 2/10 Upgrade Kit**	***1**	**2495.00**	**1618.00**	**1618.00**	**1618.00**	**1618.00**	**1618.00**	**1618.00**
A6P0013	**Lisa Dealer Demo Upgrade Kit**	*****	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
A6B0204	**512K Add-On Memory Board**	*****	**1495.00**	**1030.00**	**970.00**	**970.00**	**970.00**	**970.00**	**970.00**

Notes:
* - New Product.
1 - Available Spring 1984.

Product	Description	Notes	Sugg. Retail Price	Single and Multiple Quantities 1-3	4-9	10-19	20-39	40-79	80 +
Lisa Software			(Each)						
† **A6D0203**	**BASIC-Plus**	2	295.00	180.00	174.00	174.00	174.00	174.00	174.00
† **A6D0204**	**COBOL**	2	995.00	607.00	587.00	587.00	587.00	587.00	587.00
† **A6D0201**	**Pascal**	2	595.00	363.00	351.00	351.00	351.00	351.00	351.00

			Sugg. Retail Price	Single Qty. Price	Master Pack Qty.	Master Pack Price
† **A6D0251**	**LisaCalc (Microdisk)**	*	295.00	190.00	6	175.00
† **A6D0252**	**LisaDraw (Microdisk)**	*	395.00	255.00	6	235.00
† **A6D0253**	**LisaGraph (Microdisk)**	*	295.00	190.00	6	175.00
A6D0255	**LisaList (Microdisk)**	*	195.00	125.00	6	115.00
† **A6D0256**	**LisaProject (Microdisk)**	*	395.00	255.00	6	235.00
† **A6D0254**	**LisaWrite (Microdisk)**	*	295.00	190.00	6	175.00
† **A6D0257**	**LisaTerminal (Microdisk)**	*	295.00	190.00	6	175.00

Lisa Reference Manuals									
A6L0112	BASIC-Plus Manual Set		45.00 set	27.00	27.00	27.00	27.00	27.00	27.00
A6L0113	COBOL Manual Set		95.00 set	57.00	57.00	57.00	57.00	57.00	57.00
A6L0101	Hardware Reference Guide		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
A6L0103	Owner's Guide		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
A6L0111	Pascal Manual Set		95.00 set	57.00	57.00	57.00	57.00	57.00	57.00
A6L0141	LisaCalc Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
A6L0142	LisaDraw Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
A6L0143	LisaGraph Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
A6L0145	LisaList Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
A6L0146	LisaProject Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
A6L0147	LisaTerminal Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
A6L0144	LisaWrite Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00

Notes:

* - New Product.

† - Product eligible for floorplanning.

1 - Includes (1) LisaCalc, LisaDraw, LisaGraph, LisaWrite, Lisalist, and LisaProject software.

2 - Available February 1984.

Product	Description	Notes	Sugg. Retail Price	Single and Multiple Quantities 1-3	4-9	10-19	20-39	40-79	80 +
Literature			(Each)						
A7L0002	Apple Credit Plan Application (100/pack)		N/A	10.00	10.00	10.00	10.00	10.00	10.00
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
A9G0200	Guide to Personal Computers In Education (25/pack)		1.95 ea.	20.00	20.00	20.00	20.00	20.00	20.00
A6F0023	Lisa Intro Cards (25/pack)		N/C	N/C	N/C	N/C	N/C	N/C	N/C
† A6L0013	Lisa Poster (2/Tube)		N/C	N/C	N/C	N/C	N/C	N/C	N/C
Data Sheets									
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
A6F0010	Daisy Wheel Printer 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
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
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
A6F0012	LisaWrite Data Sheet (25/pack)		N/A	3.75	3.75	3.75	3.75	3.75	3.75
A6F0020	Parallel Interface Card (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
A6F0009	ProFile Data Sheet (25/pack)		N/A	3.75	3.75	3.75	3.75	3.75	3.75
A6F0017	System Hardware 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
AppleCare Carry-In Service for Lisa Products									
SC60014	Lisa Personal Office System		360.00/yr	234.00/yr					
SC30011	ProFile Disk Drive		150.00/yr	98.00/yr					
SC30010	Daisy Wheel Printer		150.00/yr	98.00/yr					
SC20005	Dot Matrix Printer		60.00/yr	39.00/yr					
SC20019	Imagewriter Dot Matrix Printer		48.00/yr.	31.00/yr.					
A2F0152	AppleCare Carry-In Service Registration Form (25/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

This price list supercedes all previous price lists.
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Notes:
* - New Product

Confidential -
Macintosh Authorized Dealer Price List
January 24, 1984

Product No.	Description	Note	Sugg. Retail Price	Single Quantity 1 - 3	4 +
Macintosh Personal Computers					
+ M1003	Macintosh™ Personal Computer	1	$2495.00	$1645.00	
+ M1002	Macintosh Intro System	2-3	N/A	2123.00	
+ M1103	Macintosh Starter Kit	3	N/A	395.00	
+ M1004	Macintosh Personal Computer with Imagewriter Printer	4	2990.00	1973.00	
Macintosh Printers and Accessories					
M0150	Macintosh Imagewriter Accessory Kit		N/A	38.00	
+ M0151	Apple Imagewriter with Macintosh Accessory Kit		595.00	393.00	
Macintosh Accessories					
M0200	Macintosh Carrying Case		99.00	65.00	
M0120	Macintosh Numeric Keypad		129.00	85.00	
M0510	Macintosh Apple 3.5" Blank Disk Box (10 box/10)		49.00	29.00	
Macintosh Software_					
M0520	MacWrite/MacPaint		195.00	117.00	
Macintosh Reference Manuals					
M1500	Macintosh Owner's Manual (12/pk)		9.95	5.95	

(See Other Side)

Macintosh Literature			
M1100	Macintosh Product Brochure (25/pk;min. order 2 pks)	N/A	6.25/pk
M1101	Macintosh Take-One Flyer (50/pk;min. order 2 pks)	N/A	2.50/pk
Service Stock			
652-0541	Macintosh Spares Kit	N/A	816.00
661-76156	3 1/2" Microdisk Assembly	N/A	201.00
652-0547	Macintosh Numeric Keypad	N/A	42.00
AppleCare Carry-In Service			
SC70020	Macintosh Personal Computer	84.00/yr	54.00/yr
SC70026	Macintosh Numeric Keypad	18.00/yr	12.00/yr

Notes: **1** - Includes (1) Macintosh Personal Computer and (1) MacWrite/MacPaint software.
2 - Includes (1) Macintosh Personal Computer, (1) Imagewriter with Macintosh Accessory Kit, (1) Macintosh Numeric Keypad, (1) Macintosh Carrying Case, and (1) MacWrite/MacPaint software.
3 - In order to support the Macintosh Personal Computer, the purchase of these products are prerequisites for authorized Macintosh dealers.
4 - Includes (1) Macintosh Personal Computer, (1) Imagewriter Printer with Macintosh Accessory Kit, (1) MacWrite/MacPaint Software.
+ - Products eligible for floorplanning.

Prices are subject to change without notice.
Products subject to discontinuation without notice.
Quantity prices apply to single delivery, single location.

Addendum To:
Personal Office Systems Products
Confidential Dealer Price List
January 24, 1984

Product No.	Description	Sugg. Retail Price	Single Quantity 1-3	4-9	10-19	20-39	40-79	80+
Lisa Accessories								
Apple Cluster Controller w/Accessory Kit								
A9M0313	BSC-3 ports	$4500	2847.	2669.	2624.	2579.	2534.	2490.
A9M0317	BSC-7 ports	7000.	4238.	3959.	3890.	3820.	3750.	3681.
A9M0323	SNA/SDLC-3 ports	4500.	2847.	2669.	2624.	2579.	2534.	2490.
A9M0327	SNA/SDLC-7 ports	7000.	4238.	3959.	3890.	3820.	3750.	3681.
A6C0353	ACC Accessory Kit for Lisa™	N/A	33.	33.	33.	33.	33.	33.
Service Stock								
661-76156	3 1/2" Microdisk Assembly		201.	201.	201.	201.	201.	201.
661-93194	Microdisk Adapter Board		39.	39.	39.	39.	39.	39.
341-0175E	Boot ROM		15.	15.	15.	15.	15.	15.
341-0176E	Boot ROM		15.	15.	15.	15.	15.	15.
341-0138	I/O ROM		9.	9.	9.	9.	9.	9.
077-8124	3 1/2" LisaTest Diagnostic Diskette		15.	15.	15.	15.	15.	15.
661-73172	Lisa 2/10 Power Supply		228.	228.	228.	228.	228.	228.
661-93171	Lisa 2/10 I/O Board		210.	210.	210.	210.	210.	210.
661-93170	Lisa 2/10 Motherboard		150.	150.	150.	150.	150.	150.

		Sugg. Retail Price	Single Quantity 1-3	4-9	10-19	20-39	40-79	80+
Service Stock (continued)								
661-93176	10 MB Hard Disk Assembly	$ 795.	795.	795.	795.	795.	795.	
652-0550	Lisa 2 Spares Kit	1989.	1989.	1989.	1989.	1989.	1989.	

AppleCare Carry-In Service			
SC60021	Lisa 2 System	210./yr.	132./yr.
SC30011	ProFile Disk Drive	150./yr.	98./yr.
SC60021+ SC30011	Lisa 2/5 (Order both)	360./yr.	230./yr.
SC60022	Lisa 2/10 System	360./yr.	234./yr.

This price list supercedes all previous price lists.
Prices are subject to change without notice.
Products subject to discontinuation without notice.
Quantity prices apply to single delivery, single location.

APPLE PERSONAL OFFICE SYSTEMS PRODUCTS

CONFIDENTIAL DEALER PRICE LIST

apple computer

NOVEMBER 15, 1983

	Product	Description	Notes	Sugg. Retail Price	Single and Multiple Quantities 1-3	4-9	10-19	20-39	40-79	80 +
	Lisa Office Systems			(Each)						
†	A6P0004	Lisa™ Personal Office System	1	6995.00	4827.00	4547.00	4547.00	4547.00	4547.00	4547.00
†	A6P0002	Lisa™ Demo System (one per authorized dealer location)		N/A	4995.00	N/A	N/A	N/A	N/A	N/A
	Lisa Disk Drive and Accessory									
†	A9M0005	ProFile™ Disk Drive	2	2095.00	1425.00	1340.00	1315.00	1280.00	1240.00	1215.00
	A6C0005	ProFile™ Accessory Kit for Lisa	2	N/A	36.00	36.00	36.00	36.00	36.00	36.00
	Lisa Printers and Accessories									
†	A3M0025	Daisy Wheel Printer	3	2195.00	1384.00	1341.00	1309.00	1292.00	1276.00	1259.00
	A6C0351	DWP Accessory Kit for Lisa	3	N/A	21.00	20.00	19.00	18.00	17.00	16.00
†	A2M0072	DWP Tractor Forms Feeder		279.00	184.00	179.00	174.00	168.00	163.00	157.00
	A2M0074	Multi-Strike Ribbon (DWP) (6/pack)		10.50 ea.	40.00	39.00	38.00	37.00	36.00	36.00
	A2M0081	Printwheel, Boldface (6/box)		13.75 ea.	53.00	51.00	50.00	48.00	47.00	47.00
	A2M0079	Printwheel, Courier 10 (6/box)		13.75 ea.	53.00	51.00	50.00	48.00	47.00	47.00
	A2M0080	Printwheel, Gothic 15 (6/box)		13.75 ea.	53.00	51.00	50.00	48.00	47.00	47.00
	A2M0078	Printwheel, Prestige Elite (6/box)		13.75 ea.	53.00	51.00	50.00	48.00	47.00	47.00
	A9G0324	Apple Modern 10/12 PS Printwheel (6/box)		16.50 ea.	64.00	62.00	60.00	58.00	56.00	54.00
	A9G0325	Apple Modern 10/12 Additional Characters Printwheel (6/box)		16.50 ea.	64.00	62.00	60.00	58.00	56.00	54.00
	A9G0326	Apple Modern Italics/PS Printwheel (6/box)		16.50 ea.	64.00	62.00	60.00	58.00	56.00	54.00
†	A2M0058	Dot Matrix Printer	3	675.00	419.00	406.00	393.00	381.00	371.00	361.00
	A6C0350	DMP Accessory Kit for Lisa	3	N/A	21.00	20.00	19.00	18.00	17.00	16.00
	A2M0077	Cloth Ribbon (DMP) (6/pack)		10.50 ea.	42.00	40.00	39.00	38.00	37.00	36.00

Notes:

* - New Product.

† - Product eligible for floorplanning.

1 - Includes (1) Lisa Mainframe, Lisa Accessory Kit, ProFile Mass Storage System, and ProFile Accessory Kit.

2 - 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.

3 - 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.

Product	Description	Notes	Sugg. Retail Price	Single and Multiple Quantities 1-3	4-9	10-19	20-39	40-79	80 +
Interface Cards			(Each)						
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

	Product	Description	Notes	Sugg. Retail Price	Single and Multiple Quantities 1-3	4-9	10-19	20-39	40-79	80 +
	Lisa Software			(Each)						
†	A6P0150	Lisa™ Software 6-Pack	1	1195.00	825.00	777.00	777.00	777.00	777.00	777.00
†	A6P0151	Lisa™ Software 6-Pack w/Printer	2	1495.00	1032.00	972.00	972.00	972.00	972.00	972.00
†	A6D0103	BASIC-Plus		295.00	180.00	174.00	174.00	174.00	174.00	174.00
†	A6D0104	COBOL		995.00	607.00	587.00	587.00	587.00	587.00	587.00
†	A6D0101	Pascal		595.00	363.00	351.00	351.00	351.00	351.00	351.00
†	A6D0157	Lisa Terminal		295.00	180.00	174.00	174.00	174.00	174.00	174.00

	Product	Description	Sugg. Retail Price	Single Qty. Price	Master Pack Qty.	Master Pack Price
†	A6D0151	LisaCalc	295.00	192.00	6	177.00
†	A6D0152	LisaDraw	395.00	257.00	6	237.00
†	A6D0153	LisaGraph	295.00	192.00	6	177.00
†	A6D0155	LisaList	195.00	127.00	6	117.00
	A6D0156	LisaProject	395.00	257.00	6	237.00
†	A6D0154	LisaWrite	295.00	192.00	6	177.00

	Product	Description	Notes	Sugg. Retail Price	Single and Multiple Quantities 1-3	4-9	10-19	20-39	40-79	80 +
	Lisa Reference Manuals									
	A6L0112	BASIC-Plus Manual Set	3	45.00 set	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0113	COBOL Manual Set	3	95.00 set	57.00	57.00	57.00	57.00	57.00	57.00
	A6L0101	Hardware Reference Guide	3	45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0103	Owner's Guide		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0111	Pascal Manual Set		95.00 set	57.00	57.00	57.00	57.00	57.00	57.00
	A6L0141	LisaCalc Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0142	LisaDraw Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0143	LisaGraph Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0145	LisaList Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0146	LisaProject Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0147	LisaTerminal Manual	3	45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0144	LisaWrite Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00

Notes:

* - New Product.

† - Product eligible for floorplanning.

1 - Includes (1) LisaCalc, LisaDraw, LisaGraph, LisaWrite, Lisalist, and LisaProject software.

2 - Includes Lisa Software 6 Pack, Dot Matrix Printer, DMP Accessory Kit, and Parallel Interface Card.

3 - Availability to be announced.

Product	Description	Notes	Sugg. Retail Price	Single and Multiple Quantities 1-3	4-9	10-19	20-39	40-79	80 +
Literature			(Each)						
A7L0002	**Apple Credit Plan Application (100/pack)**	*	**N/A**	**10.00**	**10.00**	**10.00**	**10.00**	**10.00**	**10.00**
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
A9G0200	Guide to Personal Computers In Education (25/pack)		1.95 ea.	20.00	20.00	20.00	20.00	20.00	20.00
A6F0023	Lisa Intro Cards (25/pack)		N/C	N/C	N/C	N/C	N/C	N/C	N/C
Data Sheets									
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
A6F0010	Daisy Wheel Printer 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
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
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
A6F0012	LisaWrite Data Sheet (25/pack)		N/A	3.75	3.75	3.75	3.75	3.75	3.75
A6F0020	Parallel Interface Card (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
A6F0009	ProFile Data Sheet (25/pack)		N/A	3.75	3.75	3.75	3.75	3.75	3.75
A6F0017	System Hardware 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
AppleCare Carry-In Service for Lisa Products									
SC60014	Lisa Personal Office System		360.00/yr	234.00/yr					
SC30011	ProFile Disk Drive		150.00/yr	98.00/yr					
SC30010	Daisy Wheel Printer		150.00/yr	98.00/yr					
SC20005	Dot Matrix Printer		60.00/yr	39.00/yr					
A2F0152	AppleCare Carry-In Service Registration Form (25/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

This price list supercedes all previous price lists.
Price Lists are subject to change without notice.
Products subject to discontinuation without notice.
Quantity prices apply to single delivery, single location.

REVISIONS TO THE OCTOBER 15, 1983
PERSONAL OFFICE SYSTEMS PRODUCTS CONFIDENTIAL DEALER PRICE LIST

* NEW LISA PRODUCTS ADDED TO PRICE LIST

Product	Description	Page No.
A6P0004	Lisa™	1
A6P0150	Lisa Software 6-Pack	3
A6P0151	Lisa Software 6-Pack with Printer	3
A6D0151	LisaCalc	3
A6D0152	LisaDraw	3
A6D0153	LisaGraph	3
A6D0155	LisaList	3
A6D0156	LisaProject	3
A6D0154	LisaWrite	3

APPLE PERSONAL OFFICE SYSTEMS PRODUCTS

CONFIDENTIAL DEALER PRICE LIST

apple computer

OCTOBER 15, 1983

	Product	Description	Notes	Sugg. Retail Price	Single and Multiple Quantities 1-3	4-9	10-19	20-39	40-79	80 +
	Lisa Office Systems			(Each)						
†	**A6P0004**	**Lisa™**	*1	**6995.00**	**4827.00**	**4547.00**	**4547.00**	**4547.00**	**4547.00**	**4547.00**
†	A6P0002	Lisa™ Demo System (one per authorized dealer location)		N/A	4995.00	N/A	N/A	N/A	N/A	N/A
	Lisa Disk Drive and Accessory									
†	A9M0005	ProFile™ Disk Drive	2	2095.00	1425.00	1340.00	1315.00	1280.00	1240.00	1215.00
	A6C0005	ProFile™ Accessory Kit for Lisa	2	N/A	36.00	36.00	36.00	36.00	36.00	36.00
	Lisa Printers and Accessories									
†	A3M0025	Daisy Wheel Printer	3	2195.00	1384.00	1341.00	1309.00	1292.00	1276.00	1259.00
	A6C0351	DWP Accessory Kit for Lisa	3	N/A	21.00	20.00	19.00	18.00	17.00	16.00
†	A2M0072	DWP Tractor Forms Feeder		279.00	184.00	179.00	174.00	168.00	163.00	157.00
	A2M0074	Multi-Strike Ribbon (DWP) (6/pack)		10.50 ea.	40.00	39.00	38.00	37.00	36.00	36.00
	A2M0081	Printwheel, Boldface (6/box)		13.75 ea.	53.00	51.00	50.00	48.00	47.00	47.00
	A2M0079	Printwheel, Courier 10 (6/box)		13.75 ea.	53.00	51.00	50.00	48.00	47.00	47.00
	A2M0080	Printwheel, Gothic 15 (6/box)		13.75 ea.	53.00	51.00	50.00	48.00	47.00	47.00
	A2M0078	Printwheel, Prestige Elite (6/box)		13.75 ea.	53.00	51.00	50.00	48.00	47.00	47.00
	A9G0324	Apple Modern 10/12 PS Printwheel (6/box)		16.50 ea.	64.00	62.00	60.00	58.00	56.00	54.00
	A9G0325	Apple Modern 10/12 Additional Characters Printwheel (6/box)		16.50 ea.	64.00	62.00	60.00	58.00	56.00	54.00
	A9G0326	Apple Modern Italics/PS Printwheel (6/box)		16.50 ea.	64.00	62.00	60.00	58.00	56.00	54.00
†	A2M0058	Dot Matrix Printer	3	675.00	419.00	406.00	393.00	381.00	371.00	361.00
	A6C0350	DMP Accessory Kit for Lisa	3	N/A	21.00	20.00	19.00	18.00	17.00	16.00
	A2M0077	Cloth Ribbon (DMP) (6/pack)		10.50 ea.	42.00	40.00	39.00	38.00	37.00	36.00

Notes:

* - New Product.

† - Product eligible for floorplanning.

1 - Includes (1) Lisa Mainframe, Lisa Accessory Kit, ProFile Mass Storage System, and ProFile Accessory Kit.

2 - 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.

3 - 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.

Product	Description	Notes	Sugg. Retail Price	Single and Multiple Quantities 1-3	4-9	10-19	20-39	40-79	80 +
Interface Cards			(Each)						
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

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
October	October 1, 1983	October 28, 1983
November	October 29, 1983	November 25, 1983
December	November 26, 1983	December 30, 1983

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

	Product	Description	Notes	Sugg. Retail Price	Single and Multiple Quantities 1-3	4-9	10-19	20-39	40-79	80 +
	Lisa Software			(Each)						
†	**A6P0150**	**Lisa™ Software 6-Pack**	*1	**1195.00**	**825.00**	**777.00**	**777.00**	**777.00**	**777.00**	**777.00**
†	**A6P0151**	**Lisa™ Software 6-Pack w/Printer**	*2	**1495.00**	**1032.00**	**972.00**	**972.00**	**972.00**	**972.00**	**972.00**
†	A6D0103	BASIC-Plus	3	295.00	180.00	174.00	174.00	174.00	174.00	174.00
†	A6D0104	COBOL	3	995.00	607.00	587.00	587.00	587.00	587.00	587.00
†	A6D0101	Pascal		595.00	363.00	351.00	351.00	351.00	351.00	351.00
†	A6D0157	Lisa Terminal	3	295.00	180.00	174.00	174.00	174.00	174.00	174.00
				Sugg. Retail Price	**Single Qty. Price**	**Master Pack Qty.**	**Master Pack Price**			
†	**A6D0151**	**LisaCalc**	*	**295.00**	**192.00**	**6**	**177.00**			
†	**A6D0152**	**LisaDraw**	*	**395.00**	**257.00**	**6**	**237.00**			
†	**A6D0153**	**LisaGraph**	*	**295.00**	**192.00**	**6**	**177.00**			
†	**A6D0155**	**LisaList**	*	**195.00**	**127.00**	**6**	**117.00**			
	A6D0156	**LisaProject**	*	**395.00**	**257.00**	**6**	**237.00**			
†	**A6D0154**	**LisaWrite**	*	**295.00**	**192.00**	**6**	**177.00**			
	Lisa Reference Manuals									
	A6L0112	BASIC-Plus Manual Set	3	45.00 set	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0113	COBOL Manual Set	3	95.00 set	57.00	57.00	57.00	57.00	57.00	57.00
	A6L0101	Hardware Reference Guide	3	45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0103	Owner's Guide		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0111	Pascal Manual Set		95.00 set	57.00	57.00	57.00	57.00	57.00	57.00
	A6L0141	LisaCalc Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0142	LisaDraw Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0143	LisaGraph Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0145	LisaList Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0146	LisaProject Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0147	LisaTerminal	3	45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00
	A6L0144	LisaWrite Manual		45.00 ea.	27.00	27.00	27.00	27.00	27.00	27.00

Notes:

* - New Product.

† - Product eligible for floorplanning.

1 - Includes (1) LisaCalc, LisaDraw, LisaGraph, LisaWrite, Lisalist, and LisaProject software.

2 - Includes Lisa Software

3 - Availability to be announced.

6 - Pack, Dot Matrix Printer, DMP Accessory kit, and Parallel Interface Card.

Product	Description	Notes	Sugg. Retail Price	Single and Multiple Quantities 1-3	4-9	10-19	20-39	40-79	80 +
Literature			(Each)						
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
A9G0200	Guide to Personal Computers In Education (25/pack)		1.95 ea.	20.00	20.00	20.00	20.00	20.00	20.00
A6F0023	Lisa Intro Cards (25/pack)		N/C	N/C	N/C	N/C	N/C	N/C	N/C
Data Sheets									
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
A6F0010	Daisy Wheel Printer 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
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
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)	1	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
A6F0020	Parallel Interface Card (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
A6F0009	ProFile Data Sheet (25/pack)		N/A	3.75	3.75	3.75	3.75	3.75	3.75
A6F0017	System Hardware 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
AppleCare Carry-In Service for Lisa Products									
SC60014	Lisa Office System		360.00/yr	234.00/yr					
SC30011	ProFile Disk Drive		150.00/yr	98.00/yr					
SC30010	Daisy Wheel Printer		150.00/yr	98.00/yr					
SC20005	Dot Matrix Printer		60.00/yr	39.00/yr					
A2F0152	AppleCare Carry-In Service Registration Form (25/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

This price list supercedes all previous price lists.
Price Lists are subject to change without notice.
Products subject to discontinuation without notice.
Quantity prices apply to single delivery, single location.

Note:
1 - Availability to be announced.

CONFIDENTIAL AUGUST 15, 1983 AUTHORIZED PERSONAL OFFICE SYSTEMS DEALER PRICE LIST

apple computer

Printer Accessories for the Lisa Office System

Model #	Description	Suggested Retail Price	1-3	4-9	10-19	20-39	40-79	80+
A9G0324	Apple Modern 10/12 PS Printwheel (6/box)	16.50 ea	64.00	62.00	60.00	58.00	56.00	54.00
A9G0325	Apple Modern 10/12 Additional Characters Printwheel (6/box)	16.50 ea	64.00	62.00	60.00	58.00	56.00	54.00
A9G0326	Apple Modern Italics/PS Printwheel (6/box)	16.50 ea	64.00	62.00	60.00	58.00	56.00	54.00

Quantity prices apply to single location, single delivery
Prices are subject to change without notice

ADDENDUM TO AUGUST 15, 1983 AUTHORIZED PERSONAL OFFICE SYSTEMS DEALER PRICE LIST

APPLE PERSONAL OFFICE SYSTEMS PRODUCTS
AUGUST 15, 1983 -- CONFIDENTIAL DEALER PRICE LIST

apple computer

	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 authorized dealer location)		N/A	5995.00	N/A	N/A	N/A	N/A	N/A
		LISA DISK DRIVE AND ACCESSORY								
+	A9M0005	ProFile Disk Drive	1	2095.00	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	DWP Accessory Kit for Lisa	2	N/A	21.00	20.00	19.00	18.00	17.00	16.00
+	A2M0072	DWP Tractor Forms Feeder		279.00	184.00	179.00	174.00	168.00	163.00	157.00
	A2M0074	Multi-Strike Ribbon (LQP) (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
July	July 2, 1983	August 5, 1983
August	August 6, 1983	September 2, 1983
September	September 3, 1983	September 30, 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									
+ A6D0103	BASIC-Plus	2	295.00	180.00	174.00	174.00	174.00	174.00	174.00
+ A6D0104	COBOL	2	995.00	607.00	587.00	587.00	587.00	587.00	587.00
+ A6D0101	Pascal	2	595.00	363.00	351.00	351.00	351.00	351.00	351.00
+ A6D0157	LisaTerminal	2	295.00	180.00	174.00	174.00	174.00	174.00	174.00
LISA REFERENCE MANUALS									
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
A6L0101	Hardware Reference Guide	2	45.00 ea	27.00	27.00	27.00	27.00	27.00	27.00
A6L0103	Owner's Guide	1	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
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
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	2	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

Notes:
+ - Products eligible for floorplanning.
1 - Available only with Lisa Office System at this time. Availability as a stand alone product to be announced.
2 - Availability to be announced.

Product	Description	Note	Suggested Retail Price	1-3	4-9	10-19	20-39	40-79	80+
LITERATURE									
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
A9G0200	Guide to Personal Computers In Education (25/pack)		1.95 ea	20.00	20.00	20.00	20.00	20.00	20.00
DATA SHEETS									
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
A6F0010	Daisy Wheel Printer 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
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
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)	1	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
A6F0020	Parallel Interface Card (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
A6F0009	ProFile Data Sheet (25/pack)		N/A	3.75	3.75	3.75	3.75	3.75	3.75
A6F0017	System Hardware 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
APPLECARE CARRY-IN SERVICE FOR LISA PRODUCTS									
SC60014	Lisa Office System		360.00/yr	234.00/yr					
SC30011	ProFile Disk Drive		150.00/yr	98.00/yr					
SC30010	Daisy Wheel Printer		150.00/yr	98.00/yr					
SC20005	Dot Matrix Printer		60.00/yr	39.00/yr					
A2F0152	AppleCare Carry-In Service Registration Form (25/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.

This price list supercedes all previous price lists.
Price Lists are subject to change without notice.
Products subject to discontinuation without notice.
Quantity prices apply to single delivery, single location.

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

apple computer inc.

	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	DWP Accessory Kit for Lisa	2	N/A	21.00	20.00	19.00	18.00	17.00	16.00
+	A2M0072	DWP Tractor Forms Feeder		279.00	184.00	179.00	174.00	168.00	163.00	157.00
	A2M0074	Multi-Strike Ribbon (LQP) (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.

Rev Date: 6/15/83

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

This price list supercedes all previous price lists.
Price Lists are subject to change without notice.
Products subject to discontinuation without notice.
Quantity prices apply to single delivery, single location.

Rev Date: 6/15/83

Questions & Answers November 1983

- General
- Hardware
- Software
- Software Development
- Small Business Software
- International
- Data Communications
- Service and Support

General Questions and Answers

Describe the Personal Office Systems 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.

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 ProFile™ hard disk.

Available for the Lisa system are seven 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; **LisaList**, a personal database to manage information; and a seventh application, **LisaTerminal**, which 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 does the Lisa cost?
The Lisa™, including one megabyte of main memory, two high-density floppy disk drives, the 5-megabyte ProFile™ hard disk, operating system and Owners Guide has a suggested retail price of $6,995.

When was the Lisa shipped for customer delivery?
The Lisa was shipped for customers in June 1983, as committed on the January 19, 1983 announcement. The Lisa is at POS Dealer locations, and is being used by many software developers.

How is 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.

Will all my Apple // software run on the 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.

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 and offer integration of applications as well.
- Few, if any competitors, have project scheduling (LisaProject) or graphics package (LisaDraw) 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 32 Bit MC68000 -- one of the most advanced CPUs invented.

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.

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 68000. 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®, Xenix, and MS-DOS 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 are available with the Lisa?
The Lisa uses the Apple ProFile™ 5-megabyte hard disk drive, and the Apple Dot Matrix, and the Apple Daisy Wheel Printer.

What is the cost of these peripherals?
A ProFile disk comes as part of every Lisa ; it's price is included in the system cost. Additional ProFiles are available with a suggested retail price of **$2,095** each. The Dot Matrix Printer has a suggested retail price of $675. The Daisy Wheel Printer lists for $2,195. (Includes accessory kits for Lisa.)

What application software is available?
The Lisa has seven integrated software applications: LisaWrite, LisaCalc, LisaGraph, LisaDraw, LisaProject, LisaList, and LisaTerminal.

How much will this software cost?
Application software packages range from $ 195 to $395.

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.

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.

If some software is not integrated, why not?
Certain aspects of integration does not 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.

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, Outside developers have been involved for over three years. There are now over 150 developers working on a wide varity of applications, including: data bases, financial modeling, word processors, and accounting software.

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.

Will I be able to get an accounting package?
Yes-**BPI** is now shipping a single-user accounting package which will run on the Lisa. **Open Systems** is shipping a multi-user accounting package for Lisa. Several other third parties are developing additional accounting software.

What has been Apple's relationship with the 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 is selling the Lisa system?
We'll be selling the Lisa through authorized Apple Personal Office Systems Dealers, as well as through Apple's National Account, Value Added Reseller (OEM), and Education Executives.

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. It has been expanded and enhanced for Lisa.

Will a direct sales force be used?
Yes. Apple account executives call on major accounts and coordinate the sale and service of equipment directly and through the dealer base.

How many dealers are selling the Lisa?
About 265 in the U.S. and Canada.

How will the Lisa sales affect the Apple //e and Apple ///?
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.

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.

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 formerly announced in the marketplace.

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.

Where can I see a Lisa?
At your local authorized Apple Personal Office Systems Dealer.

How can I get more information about the Lisa?
Contact an Apple POS Dealer. Customers interested in the Apple direct sales programs should contact their nearest regional Apple sales 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.

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.

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 do not 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 typestyles 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.

Will color versions of the 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 the color displays declines significantly.

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 860K 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 present 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.

Did you consider voice?
Yes. We don't think the technology is advanced enough for a very useful voice interface, but we designed the Lisa so that we could accommodate future advances in voice technology. Our Advanced Development Laboratory continues to investigate voice technology.

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 the 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 necessary. The mouse was designed to be a comfortable, easy to use, efficient pointing device.

Software Questions and Answers

What's Available

What applications are available at this time with the Lisa?
LisaCalc, LisaList, LisaProject, LisaWrite, LisaGraph, and LisaDraw. In addition, a calculator and clock are provided.

What languages and operating systems are available?
Pascal, BASIC-plus, and COBOL will be available for development work under the Apple-developed Operating System for the Lisa. The Lisa will also run XENIX from Microsoft and CP/M-68 from Digital Research. See Development Questions and Answers.

What small business software is available on the Lisa ?
BPI offers 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. See Small Business Software Questions and Answers.

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 which are scheduled to be available in 1st calendar quarter 1984.

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. Currently, however, it cannot print mailing labels or envelopes.

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.

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).

How does the Lisa compare to VisiCorps 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 VisiSeries 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 quality for text and graphics.

Note the following:

- VisiON today is just a demo, where the Lisa was two years ago.
- 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 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.

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.

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.

How large a model can I use with LisaCalc?
255 rows by 255 columns.

What significant competitive advantages does LisaCalc 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 25 steps and 5 minutes -- with Lisa, it takes about 4 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 tranferring 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.

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 of a list can I create?
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 arithmatic 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.

How does LisaProject compare with other scheduling programs?
There is 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 assign 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 who has ever 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.

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 typestyles 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.

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 typestyles--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 typestyles 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 typestyles 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 /// can via Access ///, can transfer text to and from LisaWrite. Some formatting information, such as tab stops, may have to be reentered.

Can I cut graphics into LisaWrite?

No, but graphics and text can be combined in LisaDraw when the user does not need the powerful formatting capabilities of LisaWrite.

Does the Lisa have a spelling checker?

Not at this time. This is an area that Apple is currently pursuing.

How does the Lisa store and retrieve repetitive phrases (i.e., a glossary)?

The Lisa user can easily store such phrases in a standard LisaWrite document, and then copy/paste to the receiving document. This is easy because you can display the phrase document side by side with the document you are working on, so that you don't have to remember any special keywords or function keys.

How do I do footnotes?

LisaWrite does not provide any automatic means for placing footnotes at the bottom of the page.

Does the Lisa provide technical typing features?
There is no special program or "mode" for technical or statistical typing. LisaWrite does, however, provide superscripts and subscripts. In addition, the Lisa applications can display and print the following technical characters:
∞,±,≠,°,Σ,†,π,µ,≪,≫,ß,δ,ƒ,Δ,¬,Ω,≈,√,∫,≤,≥.
These, plus superscripts and subscripts, can serve many technical typing requirements.

Can I have dual columns in LisaWrite?
LisaWrite only supports single-column format.

What would I use LisaDraw for?
LisaDraw is an amazingly versatile product.

- Draw organizational charts and keep them up to date with little effort.
- Create flow charts and diagrams for presentations.
- Add dramatic impact to business charts and graphs.
- Illustrate interdependencies between jobs and projects.
- Draw schematic diagrams.
- Illustrate important geographic information with maps.
- Draw floorplans or office diagrams.
- Create simple illustrations to describe complex situations.

What is LisaGuide?
LisaGuide is an interactive training guide that teaches you how to use the Lisa. It takes you through a number of examples and graphically instructs you on the basic concepts of using Lisa.

When do I use LisaGuide?
When you first get your system, the first thing you should do is use LisaGuide.

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 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 Questions and Answers

Is the Lisa an open system?
Yes, the Apple policy is to encourage software development for the Lisa. In the Apple //e and Apple /// world, most of the software packages are built by independent vendors. In the same way, we want to see a variety of software available for the Lisa.

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 development tools available on the Lisa.

Who can use the development tools?
There are 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 programs in source code from other computers, such as the Apple //e or Apple ///.
- 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 users 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. The same is true for OEM customers, who also need development tools.

What language tools are available?
Pascal, BASIC-Plus, and COBOL, are available.

Is the Workshop a separate product?
No, the Workshop is a complete development environment that comes with each Lisa language product. The Workshop includes the command shell, mouse editor, source code migrator, and a full set of utility programs. Programs can be built from scratch, or can be moved (in source code) from another computer system.

What's the Workshop like?
The Workshop command line supports single-key commands. The Workshop takes over the screen and does not look like the Office System. Certain Workshop programs, such as the mouse editor, do have menus and windows. In fact, the mouse editor is very similar to LisaWrite, and can be used to cut/paste between multiple source programs. However, remember that the Workshop environment has been designed to do programming work, not office applications.

Can I do programming work and still have the Office System, too?
Yes, the language products are compatible with the Office System and can be loaded onto the same ProFile. For larger programming projects, we would recommend using an additional ProFile, but it is not required. To add more disk space, the user installs an optional Parallel Card and one or two additional ProFiles, for a total of 10MB or 15MB of hard disk storage. Actually, the maximum configuration using all three option slots would be 7 ProFiles or 35MB.

What about Pascal?
Pascal on the Lisa is an extension to ISO (International Standards Organization) Pascal. 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, and supports full IEEE numerics. Standalone Pascal applications can be written to incorporate mouse movements as input, and to output QuickDraw 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, which will be available early in '84. Applications written in Pascal can use the same software protection scheme used for the Office System.

What's in the Pascal product?
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 Operating System for the Lisa, and the MC68000 microprocessor. Through a separate order number, customers can purchase just the Pascal manuals.

What about BASIC?
The BASIC-Plus on the Lisa has been designed to be compatible with the popular DEC BASIC-Plus product. At first release, BASIC-Plus is executed interpretively. Programs can be typed in for immediate execution, or complete programs can be created as files and then run. BASIC-Plus supports the full 64-bit double precision part of IEEE numerics.

What's in the BASIC-Plus product?
The BASIC-Plus product includes BASIC-Plus, the mouse editor, workshop utilities, and the workshop shell, as well as complete documentation for BASIC-Plus and the Workshop. Through a separate order number, customers can purchase just the BASIC-Plus manuals.

What about COBOL?
The COBOL product is a full high-level ANSI '74 COBOL (also called a level II COBOL), with certain IBM extensions. By comparison, the Apple /// COBOL is high-intermediate level. At first release, COBOL programs are interpretively executed.

What's in the COBOL product?
The COBOL product includes COBOL, the mouse editor, workshop utilities, and the workshop shell, as well as complete documentation for COBOL and the Workshop. Through a separate order number, customers can purchase just the COBOL manuals.

When will other languages be available?
We are currently exploring availability of other development languages, such as Fortran '77 and C.

Do programs run in the Lisa integrated office environment?
The integrated Office System runs in its own environment. For now, users can switch between the integrated office environment and the traditional development environment we call the Workshop. We have made it easy to switch back and forth with a feature called the Environment Window.

How can I write software to integrate into the office environment?
Either the Application Window or the Toolkit will be used to put programs on the desktop. The Toolkit offers full integration of programs and is the complete solution. The Application Window and the Toolkit will both be part of the Jan. '84 second release of the Lisa software.

Why is Apple building the Application Window?
At first release, programs built in the Workshop can only run as standalone applications in the Workshop. Apple has a goal to encourage software development for the Lisa, and the Application Window is a simple way to get programs onto the desktop. The Application Window does not involve changing the application to run on the desktop. Except for recompiling, testing, and using a simple installation procedure, there will be no additional programming work required to move the program to the desktop.

What will the Application Window do?
Cut/paste will be supported, so that information produced by a program can be used in the Office System environment. The Application Window will be very similar to the LisaTerminal, where the contents of the window are like a 24x80 terminal screen. Programs developed in Pascal, BASIC-Plus, or COBOL will be moved to the desktop with a simple installation procedure. Instead of being a separate product, the Application Window will be an additional feature incorporated into each second release language product.

Why is Apple building the Toolkit?
We are working on a comprehensive product offering called the Application Developer's ToolKit. The Office System is very sophisticated and has taken us years to develop. We are repackaging our own tools into the ToolKit so that independent developers will be able to take advantage of our 200 person-years of experience (and code) in writing applications for the Lisa. The ToolKit capabilities are built on Pascal, which is our preferred language for software development.

What will the Toolkit do?
The Toolkit is a revolutionary method of writing integrated applications for the Lisa desktop environment. Specifically, it will provide developers with a powerful set of runtime libraries for developing applications for the Lisa. In addition, the Toolkit is being designed to support the standard Lisa user interface for applications, which means that windows, scroll bars, grow/shrink buttons, menus, alert boxes, and so forth will be automatically set up to match the Office System. The programmer can then concentrate on what the application needs to do inside the window.

Can you interface Pascal, COBOL, and BASIC-PLUS to the Toolkit?
The Toolkit is being written in, and designed to interface with, a superset of Pascal called Clascal. Clascal is an object oriented programming language that is somewhat like Simula-67 or Smalltalk-80, but is easier to learn because it has a Pascal-like syntax and all the features of Pascal. You should not plan to interface COBOL and BASIC-PLUS programs with the Toolkit, and should plan instead to use the Application Window feature.

So what can I do before the Toolkit?
First, you can easily move your existing Pascal applications from other hardware like Apple //e, Apple ///, IBM PC, and so forth, to the Lisa and run them as standalone applications in the Workshop. Secondly, you can begin preparing for the release of the Toolkit by learning Pascal, by learning the QuickDraw graphics package, and by learning the Workshop environment.

What is the relationship between the Toolkit, Pascal, and the Workshop?
The Workshop will continue to be the environment in which programs are written and debugged. The Pascal product includes the Workshop environment, as well as the Pascal compiler, code generator, and linker. Toolkit product will depend on Pascal as a prerequisite. Toolkit programming will be done in the Workshop using the Toolkit product, the Pascal product, and the Workshop environment. The end result will be an application fully integrated into the Lisa desktop environment.

What operating systems will be available?
We have our own Operating System for the Lisa. In addition, Microsoft will offer XENIX, UniSoft will offer UniPlus+, and Digital Research will offer CP/M-68. We are currently exploring the availability of other operating systems, such as MS-DOS.

What is the XENIX product?
At the January '83 announcement of the Lisa, Apple announced that Microsoft would offer XENIX for the Lisa. XENIX is a multi-user, multi-tasking system marketed by Microsoft, and is a real UNIX system, not a look-alike. XENIX enables several users to share a single computer, and can be used for multi-user accounting packages or other applications. However, XENIX will be a substitute for the Apple-supplied software and will not be compatible with the Lisa Office System environment. Further questions concerning this product should be directed to John Ulett, XENIX Product Manager at Microsoft in Bellevue, WA. The phone number is (206) 828-8080.

What is the UniPlus+ product?
UniPlus+ is a multi-user, multi-tasking system marketed by UniSoft, and is a real UNIX system, not a look-alike. UniPlus+ enables several users to share a single computer, and can be used for multi-user accounting packages or other applications. Remember that UniPlus+ will be a substitute for the Apple-supplied software and will not be compatible with the Lisa Office System environment. Further questions concerning this product should be directed to, UniPlus+ Marketing Manager at UniSoft in Berkeley, CA. The phone number is (415) 644-1230.

How will CP/M be implemented?
At the January '83 announcement of the Lisa, Apple announced that Digital Research would offer a version of CP/M-68 for the Lisa. This will be a standalone software product and will not run in the Lisa Office System environment. Further questions concerning this product should be directed to Digital Research.

Can the Lisa ProFile be partitioned to run the Office System, Workshop, and other development environments?
A Lisa ProFile can contain the Office System and one or more languages (Pascal, BASIC-Plus, COBOL) that include the Workshop environment. However, other environments such as Xenix, UniPlus+, or CP/M cannot share a ProFile with either the Lisa Office System or the Workshop. These other environments support their own sets of development tools.

How do I get a machine and when?
The Lisas are available to independent software developers. Developers will be given high priority. Apple has a program which gives qualified developers a discount on systems, software and peripherals. For more information on this program and a technical description of the Lisa development tools, prospective software developers should write to:

Personal Office Systems Division, MS 2-S
Apple Computer Inc.
20525 Mariani Avenue
Cupertino, CA 95014

ATTN: Program Coordinator/Third Party Products

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. BPI will offer General Accounting (available October 1983), Accounts Receivable, Accounts Payable, and Payroll (all three available in November 1983) 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 are currently available.

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 four 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 middle 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 A][+, 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. Concerns relating to the incompatibility between environments will be

mitigated in the later half of calendar year 1983 as productivity applications (such as word processing and spreadsheet) are added to the XENIX environment by 3rd party software developers. With these additions, Lisa's XENIX users will have access to accounting software and productivity tools within the XENIX environment.

Who will distribute and support BPI's and Open Systems' accounting software and Microsoft's XENIX operating system?
BPI, Open Systems, and Microsoft will provide all distribution, support, service, and training for their products. None of this software will be Apple labeled.

How much will the small business software cost?
Each of BPI's accounting applications will have a suggested retail price of $595. Open Systems' applications will also list for $595 a piece. In addition, Open Systems' software requires a Business Basic runtime environment which will be priced at $225 suggested retail.

Microsoft will charge $395 for the single user version of XENIX and $695 for the combination of a multi-user XENIX upgrade and a 4 -port serial card designed to fit into one of the Lisa's expansion slots.

International
Questions and Answers

Is Lisa available abroad?
Just two months after initial US domestic shipments, customers in Britain, France, Germany, Australia, and New Zealand are receiving Lisas customized for their local markets. In addition, the Italian, Belgian and Swiss Lisas are well under development, and localizations of Swedish and Spanish Lisas are in the planning stage.

Our plan is offer a series of localized versions of the Lisa in each of the major markets of the world, each of them variations of a basic hardware and software architecture designed to make the Lisa fully international as well as fully localized.

How is Lisa being sold internationally?
The Lisa is sold by authorized Personal Office System Dealers, some of whom are existing dealers and some of whom are being recruited. Many authorized POS Dealers are qualified to handle the product, and the application procedure is administered by sales management in each country.

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-speaker using an English version 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.

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 this fall.

How will Apple support the Lisa in Europe?
Training centers are being established in Zeist, Munich, Orsay, and Hemmel Hempstead. Over the next year, additional centers will be set up in Zurich, Stockholm, Geel, Barcelona, Madrid and Milan. Service will be available through the authorized POS Dealers, and (in some areas) through an on-site service program. Apple will train personnel and provide diagnostics for firms that wish to perform level one service themselves under our Servicing Owner Program.

Will the Lisa be manufactured in Europe?
Apple's manufacturing facility in Cork, Ireland, began building Lisas in August 1983.

Data Communications
Questions & Answers

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 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 in early 1984. 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. Other data communication packages will follow later.

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 Custer 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 LisaWrite.

What advantages does LisaTerminal have over ordinary terminals and display devices?
LisaTerminal allows you to use host information in other Lisa applications, such a LisaWrite.

What IBM communications capabilities does the Lisa have?
LisaTerminal can be used used with the Apple Cluster Controller to allow cost-effective attachment of multiple Lisas to IBM computers.

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 authorized Apple Personal Office Systems Dealer or Apple sales representative.

Service and Support
Questions and Answers

What warranties will come standard with the Lisa?
Standard Hardware Warranty
The Lisa will be covered by Apple's standard 90-day parts and labor limited warranty. The terms of this warranty will require the customer to return defective equipment to an Authorized Apple Personal Office System Dealer, 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 limited 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 application software is included in the price of systems purchased prior to the unbundling and price reduction on September 12, 1983. For Lisa software purchased after this date, all updates (including the first) will be available for purchase at a reasonable charge.

How about system installation?
All Lisa customers, whether National Accounts or individual customers purchasing through a dealer, may elect to have Lisa installed at their site at no charge. The installation will normally be provided by a Personal Office Systms Dealer; however, National Account customers may choose RCA in lieu of a dealer.

System 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 service options:

Apple On-Site Full Service Maintenance: This program is an annual service contract with Apple that provides unlimited repairs on-site for one fixed yearly cost. The on-site service is provided by RCA Service Company. There are 200 RCA service offices throughout the U.S. and Puerto Rico. Response time is typically within one-half day in all major metropolitan areas with service available between 8 am and 5 pm, Monday through Friday.

Apple On-Site is presently available only to National Account customers and Education Institutions. OEM customers may contract directly with RCA for on-site service.

Servicing Owner: This program was developed for those customers geographically remote from Apple POS 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.

Authorized Dealer Service Program: All direct sale customers have the option of purchasing service through the Apple POS Dealer network. These programs include Dealer On-site Service, AppleCareCarry-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: Dealers 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 Apple POS 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 POS Dealer 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?
Apple currently maintains a mailing list of all users who have returned their hardware/software registration cards and software license. When the update becomes available, these customers will be notified and given the opportunity to purchase the update.

Questions and Answers May 1983

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- Independent S/W Developers
- Small Business Software
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- AppleNet
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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, Conroller; 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 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 graphcs 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, muti-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 comuter 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 Accout 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 typestyles 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 orgranized 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 o 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**
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- **Applications**
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- **Languages and Development**
  - General
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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 tranferring 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 seperate 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 arithmatic 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 typestyles 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 typestyles--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 typestyles 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 typestyles 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.

Can I cut graphics into LisaWrite?
No, but graphics and text can be combined in LisaDraw when the user does not need the powerful formatting capabilities of LisaWrite.

Does the Lisa have a spelling checker?
Not at this time, but this is an area that Apple is currently pursuing.

How does the Lisa store and retrieve repetitive phrases (i.e., a glossary)?
The Lisa user can easily store such phrases in a standard LisaWrite document, and then copy/paste to the receiving document. This is easy because you can display the phrase document side by side with the document you are working on, so that you don't have to remember any special keywords or function keys.

How do I do footnotes?.
LisaWrite does not provide any automatic means for placing footnotes at the bottom of the page.

Does the Lisa provide technical typing features?
There is no special program or "mode" for technical or statistical typing. LisaWrite does, however, provide superscripts and subscripts. In addition, the Lisa applications can display and print the following technical characters:
¿,±,≠,°,¿,†,¿,¿,≥,≤,ß,¿,¿,¿,¬,¿,≈,¿,¿,≤,≥.
These, plus superscripts and subscripts, can serve many technical typing requirements.

Can I have dual columns in LisaWrite?
LisaWrite only supports single-column format.

LisaDraw

What would I use LisaDraw for?
LisaDraw is an amazingly versatile product.

- Draw organizational charts and keep them up to date with little effort.
- Create flow charts and diagrams for presentations.
- Add dramatic impact to business charts and graphs.
- Illustrate interdependencies between jobs and projects.
- Draw schematic diagrams.
- Illustrate important geographic information with maps.
- Draw floorplans or office diagrams.
- Create simple illustrations to describe complex situations.

Interactive Tutorial/LisaGuide

What is LisaGuide?
LisaGuide is an interactive training guide that teaches you how to use the Lisa. It takes you through a number of examples and graphically instructs you on the basic concepts of using Lisa.

When do I use LisaGuide?
When you first get your system, the first thing you should do is use LisaGuide.

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 Polis 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 // or Apple ///.
- 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 inplements 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
Information Bulletin

INSTALLATION AND SETUP HINTS

It is important that a customer's first experience with a Lisa™ be productive as well as enjoyable. In order to ensure that this happens, their system has to be installed and set up properly. If the system is configured correctly and the customer oriented properly, many minor but irritating startup problems can be avoided.

Some helpful information for installing and initially configuring a Lisa system is given below. For more detailed information reference the Lisa Setup Procedures in the Lisa Level I Service Training Manual.

BEFORE THE LISA LEAVES YOUR STORE
Load the Lisa software onto the Profile™. Test the printing and make sure the entire system is functioning properly.

EMPTY LISA BINDER
In the Lisa Accessory Box #A6M0101, there is an empty Lisa binder. This binder is for storing the DMP, DWP, ProFile, and Parallel Interface Card manuals. Be sure to tell the customer what the binder is for, or better yet, place the manuals in the binder for the customer.

DAISY WHEEL PRINTER
If a customer is purchasing a Daisy Wheel Printer, be sure to change the switch settings so that the baud is set to 9600. A baud rate of 1200 is the factory default setting. The directions for changing the switch setting are located on pages 19, 20, and 33 of the DWP Manual. Also, be sure to use the modem eliminator cable when connecting the printer to the Lisa and to give the customer the Lisa DWP Accessory Kit #A6C0351 - it contains the DWP manual which is placed in the empty binder.

PARALLEL DOT MATRIX PRINTER
Under the front cover, there are two DIP Switches. On both DIP Switches set slot 7 to the closed position. All the other slots should be set to the open position. As with the DWP, do not forget to give the customer the Lisa DMP Accessory Kit #A6C0350 which contains the printer manual.

I/O BOARD - LISA
On the I/O board of the Lisa, make sure the battery switch is in the ON position. This keeps the clock and the preferences going when the Lisa is off and the power is disconnected from the system for a short while.

PARALLEL INTERFACE CARD

When installing the Parallel Interface Card, do not install it into Slot 3 (expansion slot nearest the side). It presently will not work in that slot. The card is normally installed in Slot 2.

THROWING AWAY FILES

Be sure to review with the customer the procedures for throwing away files (i.e., the use of the WasteBasket, page D23 of the Owner's Manual) and the consequences of throwing away the tools, clock, calculator, as well as ordinary documents. Note that it is possible to throw away tools from the master diskette and there are not any replacements once they have been discarded.

LISAGUIDE AND OFFICE SYTEM 1 & 2 DISKETTES

Explain the software diskettes (Office System 1 & 2 and LisaGuide) to the customer. Be sure to tell them that LisaGuide and the Office System diskettes are NOT usable from the Office System (ie. Desktop environment). These diskettes should only be used in the Office System when they are to be duplicated. Please refer to pages A2 and A3 in the Owners Manual for more information on LisaGuide. Pages B2, B5, D32 - D40, and D49 - D62 explain the use of the Office System 1 & 2 diskettes as well as the Tool diskettes.

Lisa Installation and Setup Hints

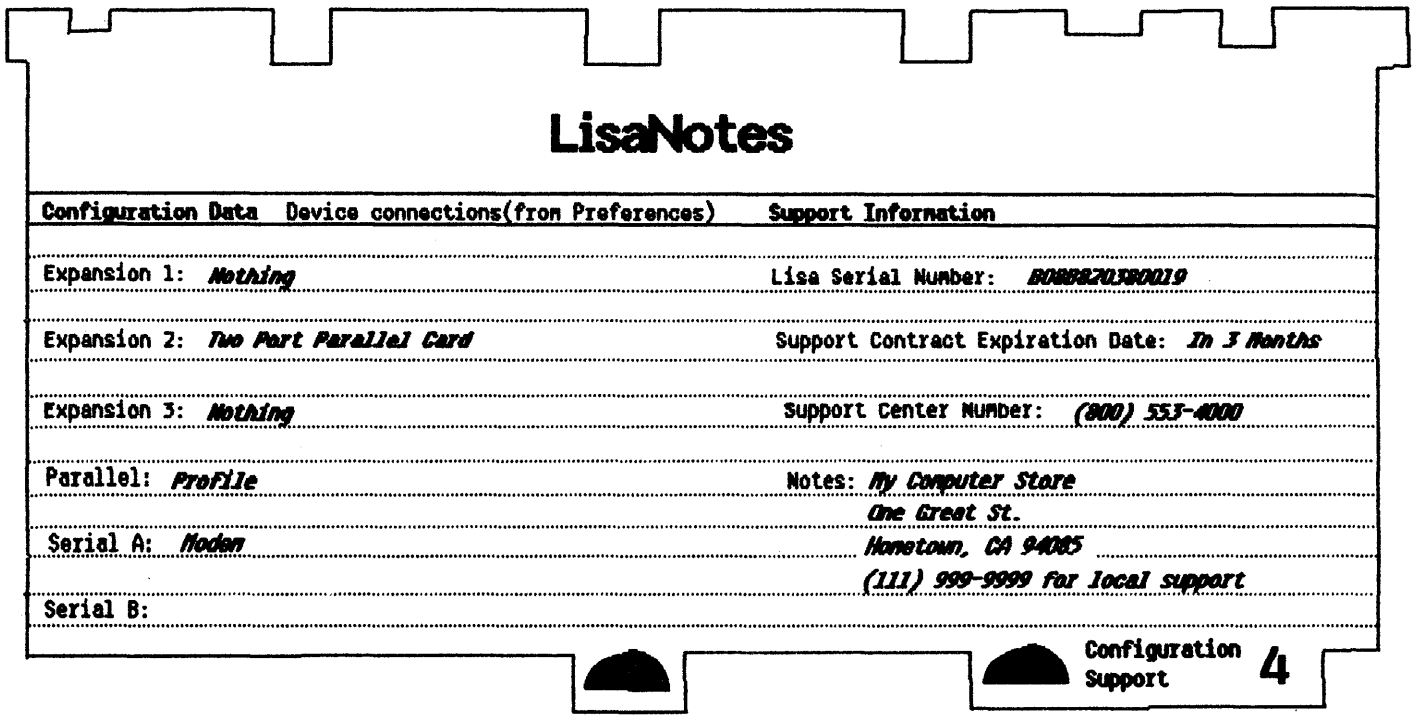
On the keyboard Pullout Card titled "Configuration Support" as diagramed below, be sure to fill in the following information for the customer:

Lisa Serial Number: The number will be requested by the phone support center when the customer calls so it needs to be easily accessible.

Support Center Telephone No: The telephone number is (800) 553-4000.

Your address and telephone number: Be sure to put your address and telephone number on the card so the customer can call you for future service and support.

Also write down how the LISA was configured. This information will help you in diagnosing and solving possible problems in the future.



LISA
Information Bulletin

LISA AND MS-DOS

LISA™ is selling into the office market and, as a result, is of primary interest to office managers, professionals and support staff. As such, it is very important for LISA to provide the most complete and flexible microcomputer solution to the needs of these individuals.

Part of this flexibility is evidenced by LISA being an "open machine". Just as the Apple][Plus, Apple //e, and Apple /// are used by many customers in a CP/M environment (in addition to Apple DOS and SOS) to achieve access to additional software, LISA will gain additional flexibility by running other popular operating systems. This will give our customers access to a software base and, as a result, operating capabilities that might otherwise be unavailable to them.

In the case of LISA, the user interface is unquestionably superior to that provided by MS-DOS. MS-DOS, as well as Xenix and CP/M 68K, will be offered on LISA in order to reinforce it as an "open machine" and to give Lisa users access to the applications written for these operating environments.

> This direction reflects our recognition that MS-DOS has become an important operating system in the office market. We are committed, however, to the LISA environment as our primary thrust and to the benefits that the user realizes in terms of ease-of-use and application features through our unique operating characteristics and user interface.

In summary:

- LISA is an "open machine".
- The LISA user interface and operating environment is superior to that provided by MS-DOS.
- In recognition of the growing importance of MS-DOS to the office market and in order to provide our users with the ultimate in operating flexibility, we will provide an MS-DOS environment for LISA
- We continue our primary thrust to the unique environment of the LISA user interface because of the fundamentally superior characteristics that it provides to our users.

This MS-DOS capability will be available on LISA in the latter part of 1984.

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Information Bulletin

PASCAL-BASIC-COBOL

In the fourth quarter of this year, Apple will release the following Languages for the LISA™.

- o **PASCAL:** Expected late September.
- o **BASIC-PLUS** and **COBOL:** Expected to follow in October.

PASCAL for the LISA is similar to Apple // and Apple /// Pascal. **BASIC-PLUS** is functionally equivalent to the popular DEC BASIC-PLUS product. **COBOL** is a full GSA high level product.

PASCAL, BASIC-PLUS, AND **COBOL** 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.

PASCAL is Apple's preferred language for program development, and is intended for third-party software developers, OEM customers, 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 a future product called the Apple Toolkit, will both be required for developing applications that are fully integrated with the LISA Office System.

BASIC-PLUS and **COBOL** are popular languages that can be used by third-party software developers, national account customers, and individual users. Programs written in **BASIC-PLUS** and **COBOL** are run in a standalone environment. Both programs can be easily moved to the LISA and run as they would on other machines.

For pricing, packaging, and additional information, see June 1983, Fact Sheets in your LISA Sales Marketing Binder.

Lisa Information Bulletin

Third Party Software for the Lisa Desktop

Leading independent software companies have announced more than 80 software applications for the Lisa product line. Twenty-four companies announced products during the week of the Apple 32 SuperMicro Systems™ announcements, most of which expect to ship product by June.

Although many of the companies are making use of the Lisa as a powerful UNIX™ machine, eleven developers announced their intention to develop applications for the Lisa. These developers are using QuickPort and ToolKit/32 to design applications in key product areas for the Lisa Desktop Environment. The companies, and the key points of their announcements, were as follows:

Aardvark/McGraw-Hill: "Professional Tax Planner" and "Estate Tax Planner", financial and tax planning programs for financial professionals, CPA's and attorneys. Both applications will run inside Lisa windows. Professional Tax Planner enables financial professionals to examine up to five alternatives for a single tax year or projections of up to five successive years. Estate Tax Planner can handle any number of "what if" assumptions in estate planning. **Available:** "Professional Tax Planner", 2Q84, "Estate Tax Planner", 3Q84. **Price:** "Professional Tax Planner", $350, "Estate Tax Planner", $750, optional maintenance agreements available. **Contact:** Dean Sobel, (414) 225-7500.

Ashton-Tate: "dBASE II", the largest selling relational database management program for microcomputers. Software supporting the dBASE II program includes "dBASE II RUNTIME", an Ashton-Tate program for developers of customized dBASE II applications. Both a UNIX version and a Lisa Desktop version will be available. **Available:** 4Q84. **Price:** N/A. **Contacts:** Press: Pat Braden, Bob Thomas and Associates Inc. - (213) 376-6978. Dealers and Public: Ron Arens.

Aurora Systems: "CRTplus", a decision support tool to help banks, S&L's, credit unions and other financial service companies develop new customers. CRTplus performs a variety of financial calculations including CD and early withdrawl analysis, IRA account analysis, installment loan alternatives, loan amortization, and taxable vs. nontaxable investment strategies. CRTplus gives customers personal printouts, and helps train service personnel. **Available:** 2Q84. **Price:** NA. Contact(s): Daniel J. Stein, (608) 249-5875.

BPI Systems, Inc.: "General Accounting", "Accounts Receivable", "Accounts Payable", "Payroll", a general accounting system for small and medium-sized businesses. All four packages use Lisa's mouse for menu and item selection, and are customized to take advantage of Lisa's multi-processing capabilities as well as the speed of the MC68000 processor on which the Lisa is based. **Available:** now. **Price:** $595 for each package. **Contact(s):** Press: Thomas O. Meadows at BPI - (512) 454-7191 or Molly Garnett at Simon/Public Relations, Inc. - (214) 233-0956. Public and Dealers: BPI at (512) 454-7191.

Business and Professional Software, Inc.: "Art Department", a library of graphic images for LisaDraw. Art Department is a library of images designed for use by business people who generate presentations on the Lisa. The ten categories of drawings include maps and flags, typestyles, people, places and things, business forms and graphic elements. **Available:** Immediate. **Price:** $150. **Contacts:** Press: Marilyn Darling, Dealer and Public: Mike McCarthy at 617-491-3377.

Compulaw: "Client Management System", a comprehensive accounting system for the legal professional. Product is designed to provide small to medium size law firms with data processing capabilities affording control, speed and flexibility on a scale previously possible only on main-frame or mini-computers. Performs billing, time, expense and payment recording, unbilled time accounting, accounts receivable, management reports, trust accounting, and retainer accounting. **Available:** April 1984. **Price:** $2495. **Contact(s):** Steve Bloom (219) 781-2461 or (213) 558-3360.

Execucom: "IFPS/Personal" is an advanced personal decision support system which provides both syntax-driven financial modeling and spreadsheet capabilities. Models and data files can be exchanged between the Lisa and mainframe versions of IFPS. **Available:** August, 1984. **Price:** $3000 quantity 1. **Contact:** Press and Dealers: Gary Greenfield - (512) 346-4980. Public: Market Information Office - (512) 346-4980.

Sorcim: The name is not yet known but they will provide an integrated package combining spreadsheet, database and graphics functions. Sorcim is the developer of the popular Supercalc 3 product. **Available:** 3Q84. **Price:** NA. **Contact(s):** Hal King, VP Marketing, Sorcim Corporation (408) 942-1727.

Videx, Inc.: "DeskTop Calendar", a time management tool which is being developed with the Lisa ToolKit/32, will be completely integrated into the Lisa desktop environment. Combines a graphic calendar display with a notepad/appointment book. User may select one or more days from the calendar and enter notes or appointments. Program will alert the user to appointments even while another Lisa application is in use. **Available:** 3Q84. **Price:** $295. **Contact(s):** Bill Rea - (503) 758-0521.

Wadsworth Professional Software, Inc.: "Statpro", a series of integrated statistics, graphics, and data management programs designed to turn the Lisa 2 into a professional research and management workstation. "Statpro, in the Lisa 2 environment, will provide a state-of-the-art software solution for the professional data analyst" according to Richard J. Dunfey, General Manager of Wadsworth Professional Software. The package's menu-driven interface permits users to manage and integrate complex data, statistical, and graphic analyses, and report generation all with a few simple keystrokes. **Available:** June, 1984. **Contacts:** Christopher Sprague at (617) 423-0420 or (800) 322-2208.

In addition to these developers, the Lisa third-party group is currently working with approximately 175 Certified Developers and is receiving reports of other developers working on Lisa projects independent of the Certified program. The group is processing approximately 2-5 information requests per day on becoming a Lisa developer.

Lisa
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UNIX™ Software for Lisa

With the introduction of the Lisa 2 product line in January and the shipment of UNIX software by 14 software developers in March and April, Lisa is poised to become the premier UNIX machine in 1984.

Lisa runs two versions of the UNIX operating system, XENIX™ and UniPlus+™. XENIX is Microsoft's commercial version of Bell Lab's UNIX operating system and will be distributed and supported by Santa Cruz Operations beginning in March 1984. UniPlus+ is a full Bell Labs System V implementation of UNIX and will be distributed and supported by UniPress starting in April 1984.

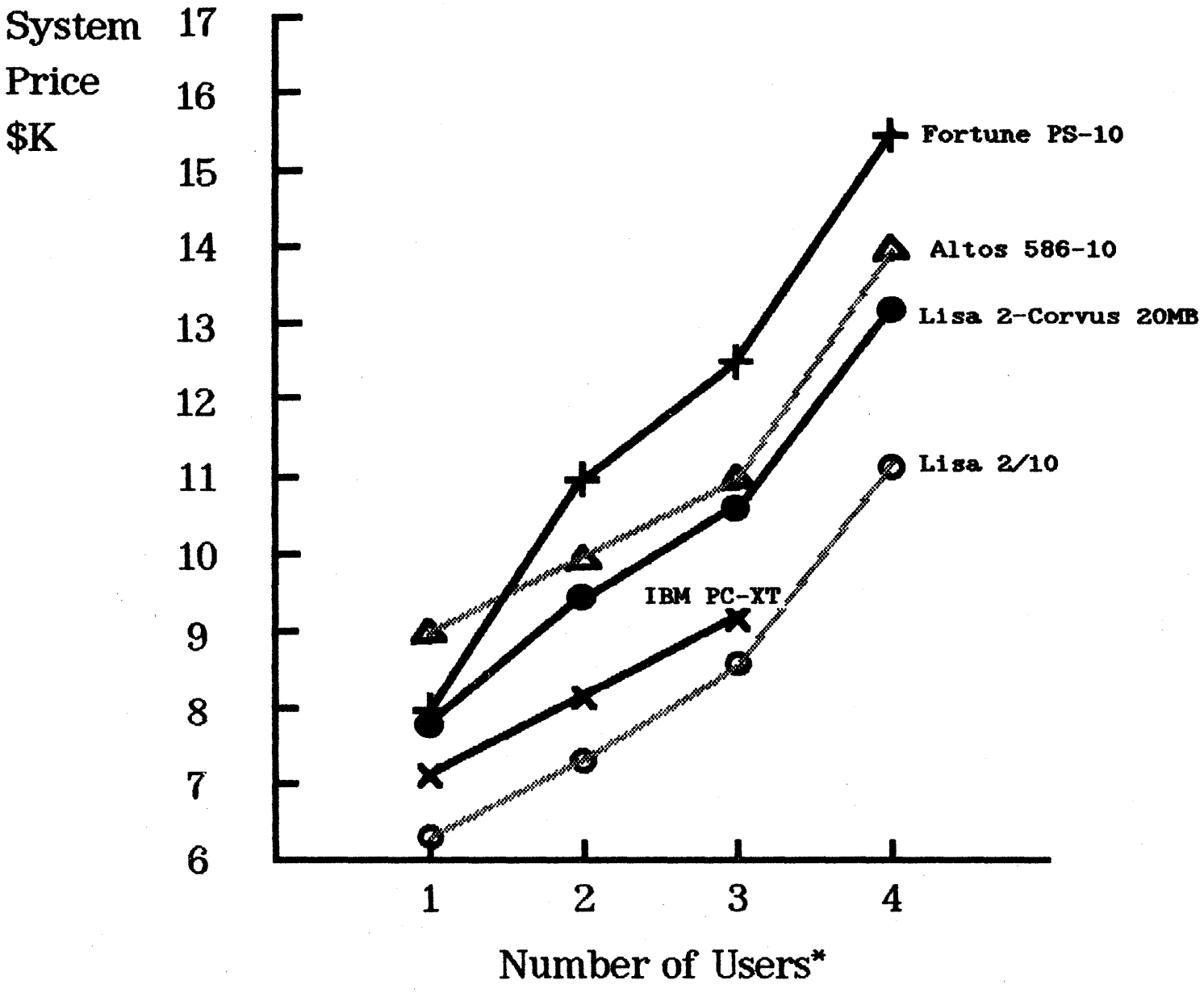
These two versions of the UNIX operating system add multi-user capability to Lisa and, thus complement the single-user, multi-tasking Lisa Office System. The availability of UNIX positions Lisa to compete in the multi-user segment of the personal computer business where UNIX appears to be emerging as the defacto standard. Lisa will not compete as a run-of-the-mill product in this business. Rather, as is shown in Exhibit 1, it offers superior price/performance to leading UNIX systems. In addition, by supporting the Priam, Corvus, and Sunol hard disk drives under UNIX, Lisa offers as broad a line of configurations as any UNIX competitor.

What's the attraction of Lisa running UNIX to Apple's dealers? First, UNIX software from 14 developers will be available for sale beginning in March and April of 1984. These applications include word processors, data bases, spreadsheets, accounting software, and vertical market applications. This software will open up significant new segments of the small business and office markets to the Lisa 2 product family and, thus, will enable Lisa dealers to serve a broad range of customers in both the single-user and multi-user workstation markets. As a result of this broad market reach, dealers can consolidate their product lines around Lisa, thus realizing savings in training and support costs as well as in shelf space, inventory, and spare parts.

A second major attraction of Lisa running UNIX is the opportunity to sell other Apple personal computers with data communications software as terminals into a host Lisa system (see Exhibit 2). Instead of selling one Apple computer to a customer, salespeople can now sell a system of three to four Apples. Dealers have already experienced success selling several Apple //e's with Lisa running Open Systems Accounting Software under XENIX.

In order to facilitate and encourage communication between Apple dealers and developers of UNIX-based software, the developers' names, products, prices, availability dates, and contact persons are listed in Exhibit 3. Developers should be sending information to you in February, but if you are particularly interested in their products, don't hesitate to contact the developer's spokesperson listed in Exhibit 3.

Exhibit 1
Lisa 2/UNIX vs Competition



* Notes: 1) All systems configured with 512 KB RAM for 1 to 3 users and with 1 MB for 4 users.

2) System price includes computer hardware and UNIX Operating System. No printer or application software is included.

Exhibit 2: Lisa 2/10 and Unix™ Hosting Apple's Product Line

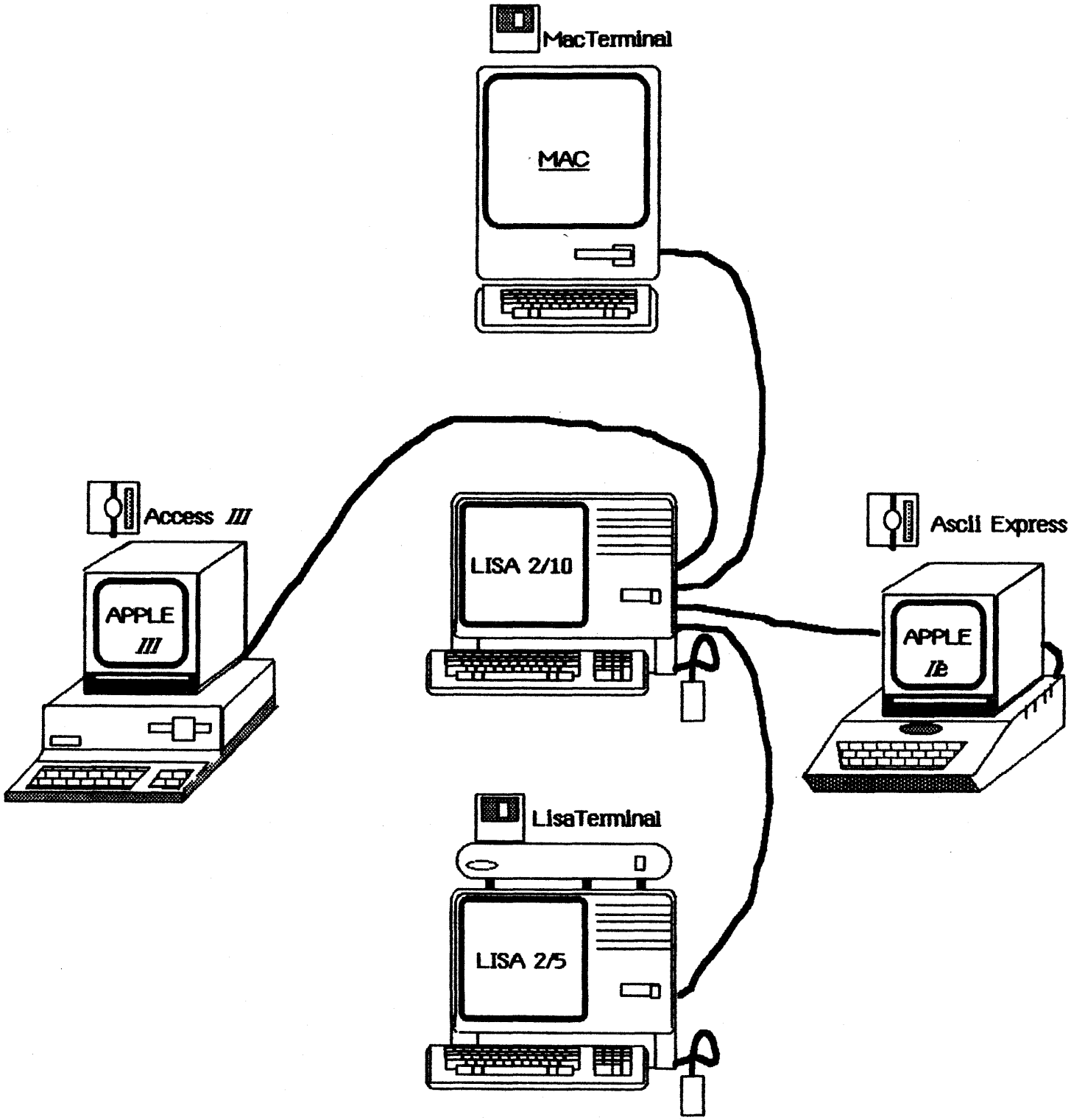


Exhibit 3
UNIX Developers

The following software companies are supporting the Lisa's two UNIX environments--XENIX and UniPlus+:

- **Accountants Microsystems, Inc.** will offer the "Tax Machine," a tax preparation package for professional accountants for $1,495, and the "Personal Tax Machine", tax preparation software for individuals for $295. Both programs run under XENIX and will be available in April 1984. For information contact Mike Mango at (206) 643-2050.

- **American Business Systems, Inc.** will offer "Business Accounting Control Systems,"--a multi-user family of accounting software running under XENIX. The software will include Order and Inventory Management, Accounts Receivable, Accounts Payable, Payroll, and General Ledger. It will be available in April 1984. For information contact Ramesh Mehta at (617) 692-2600.

- **Condor Computer Corporation** will offer "Condor 1", a relational data base management system, for $650 and "Condor 3", a file manager, for $295. These products run under XENIX and will be available in March 1984. For information call Richard Aure at (415) 962-0242.

- **Horizon Software Systems, Inc.** will offer "Horizon Word Processing and Spreadsheet" for $595, "Horizon Word Processing" for $395, and "Horizon Spreadsheet" for $195. The products all run under XENIX and will be available in March 1984. For information contact Paul Miller at (415) 543-1199.

- **Open Systems, Inc.** is now offering the "Software Fitness Program," a full multi-user accounting family of products running under XENIX. It includes the following packages: Accounts Payable, Accounts Receivable, General Ledger, Inventory, Job Cost, Payroll, Purchase Order, Sales Order, and Team Manager--a program for creating custom reports from accounting data or for formatting data for use with popular word processing, spreadsheet, and data base management systems. Each module is priced at $595. Lisa 2 versions will be available in April 1984. For information, contact Ken Kark at (612) 870-3515.

- **Quadratron Systems, Inc.** will offer the complete "Q-Office" line of office automation software for $1,860, or separately, the "Q-One", a full feature Wang-like word processer and text composition system for $595; "Q-Date" electronic calendar for $155; "Q-Math" calculator for $115; "Q-Menu" menu design utility for $395; "Q-Note" note-card program for $115; "Q-Call" phone directory for $115; "Q-Mail" electronic mail facility for $155; and the "Q-Form" interactive screen builder for $395. The Q-Office line runs under XENIX and will be available in March 1984. For information contact Vanessa Abbe at (213) 789-8588.

- **R Systems, Inc.** will offer the "R Word" word processor with mail merge and math functions. R-Word runs under XENIX and will be available in March, 1984 for $895. For information contact James Arnold at (214) 343-9188.

• **RealWorld™ Corporation** will offer "Read World Business Software"--a multi-user family of accounting software running under XENIX. Packages will include Accounts Receivable, Order Entry with Inventory Control, Sales Analysis, Accounts Payable, General Ledger, and Payroll. They will be available in April 1984. For information contact Larry Wilbur at (800) 225-1115.

• **Ryan-McFarland Corporation** will offer "RM/COBOL" and "RM/FORTRAN." The languages run under both XENIX and UniPlus+ and will be available in March 1984 for $1,250 each. For information contact Glenn Embrey (213) 541-4828.

• **Santa Cruz Operations, Inc.** will offer the "XENIX Operating System", for $795, the "XENIX Software Development Environment" for $595, and the "XENIX Test Processing System" for $495. Santa Cruz Operations will distribute and support these three modules and will provide application software, languages and development tools for use on the XENIX system. XENIX System modules can be purchased separately for prices listed above, or together for a total of $1,495. Also available will be the "Multiplan" spreadsheet for $495, "Uniplex" word processor $595, "Informix" relational data base for $795, "Level II COBOL", compact version for $795, "Level II COBOL", high performance upgrade and native code generator for $795, "Forms 2" source generator, and "Animator"--a screen-oriented symbolic debugger. These will be available together in both compact and high performance upgrades for $795. The XENIX modules and applications will be available in late March 1984. For information contact Ron Williams or Kam Bargert at (408) 425-7222.

• **SMC Software Systems** will offer "IDOL" data base manager and report generator for $595, "SMC Business BASIC" for $395 and "Business Graphics" for $595 in late March 1984. "Thoroughbred Business Software," which includes General Ledger, Accounts Payable, Accounts Receivable, Purchase Orders, Order Processing, Payroll, and Fixed Assets will be available in second quarter 1984. For information contact Donna Zaller at (201) 685-9000.

• **Tom Software** will offer "The Office Manager" product line which includes the following products: "General Business Management."-- Accounts Receivable, Accounts Payable, General Ledger, and Payroll; "Distributor Business Manager", "Public Accountant Business Management", "Restaurant/Food Service Management Information", "Property Management Business Information", "Not-For Profit Operations Management", "Speed I" software application utility, and "EZ Speed" records management. These products run under UniPlus+ and will be available in April 1984. For information contact John Harris (206)246-7022.

• **Unify Corporation** will offer the "UNIFY" relational data base management system for $1,495. UNIFY runs under the UniPlus+ operating system and will be available in May 1984. For information contact Duke Castle at (503) 245-6585.

• **UniPress Software, Inc.** is offering the "Single-user UniPlus+" operating system for $495; and "Multi-user UniPlus+" upgrade for $495, the "C Development Environment for $495, and "Text Processing" for $495. These modules can be purchased separately or together as a complete system for $1,495. In addition, UniPress Software is offering the "4-Port Serial Card," "SVS FORTRAN for $600, "SVS Pascal for $600, SVS BASIC-Plus for $400, "ADA", "COBOL", "Lex" word processor for $750; "Emacs," a full screen multi-window editor for $395, and "UniCalc spreadsheet for $350. UniPress will distribute and support the four UniPlus+ system modules and will offer application software, languages, and development tools for use on the UniPlus+ system. The modules, languages, development tools and applications will be available in April 1984. For information contact Fred Pack at (201) 985-8000.

SOLUTIONS

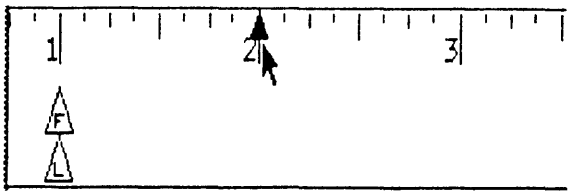
SETTING TABS

Objective: To set or change a tab stop in a LisaWrite™ document.

Lisa Solution:

BEFORE CREATING A LISAWRITE DOCUMENT:

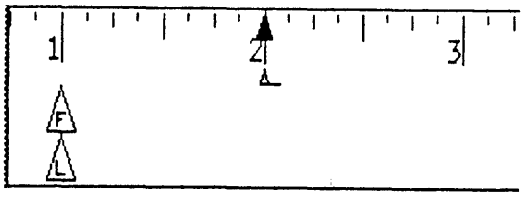
1. From the Format menu, choose **Show Margin/Tab Ruler.**



2. On top of the horizontal ruler that appears, **point** to where you want to set a tab, then **click once** with the mouse button.

3. From the Ruler menu, choose **Set Normal Tab.**

   Note: The tab is now indicated by the white tab marker under the black marker.



4. From the Format menu, choose **Hide Margin/Tab Ruler**

Lisa Solution:

TWO WAYS TO CHANGE THE LOCATION OF A TAB ALREADY CREATED:

1. After highlighting a paragraph, point to the tab marker on the ruler, and drag it to the new location.

2. After highlighting a paragraph, select the tab marker, choose clear Tab Stop for the Ruler menu. Repeat Steps 2-4,above.

SOLUTIONS

CUT & PASTE: LISAGRAPH TO LISADRAW

Objective: "Explode" a pie chart to highlight a specific segment of the pie.

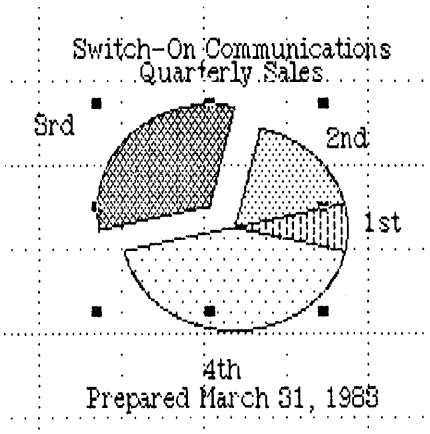
Lisa Solution:

AFTER COMPLETING THE PIE CHART IN LISAGRAPH™:

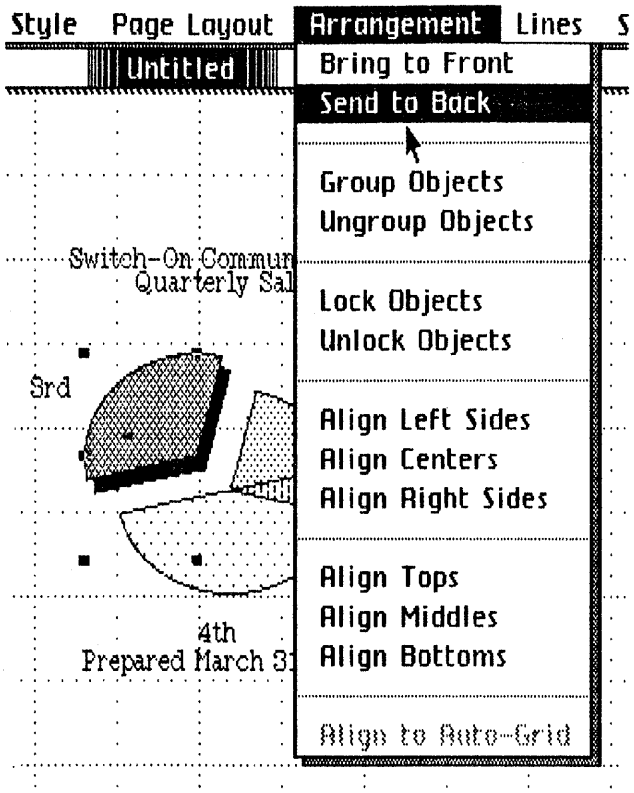
1. Choose 'Select all of Graph' from the Edit menu.
   NOTE: The entire graph is now highlighted/selected.
2. Return to the Edit menu and choose 'Copy'.
3. Activate and open a LisaDraw™ document.
4. Choose 'Paste' from the Edit menu.
5. To de-select the graph, move the pointer anywhere on the document other than the graph itself and click on the mouse button.

TO ENHANCE/CUSTOMIZE THE PIE CHART:

6. Grab a piece of the pie by putting the pointer on a section of the pie, press and hold down the mouse button while moving the piece out.
7. While that piece of the pie is still highlighted/selected, move the pointer to the Arrangement menu and choose 'Ungroup Objects'. De-select the text label which moved with the pie slice by simultaneously putting the pointer on the text label, holding down the shift key, and clicking the mouse button. **This will de-select the text label while leaving the pie slice selected.**



8. While the pie slice is still highlighted, choose 'Duplicate' from the Edit menu.
9. While the duplicate piece of the pie is still selected, move the pointer to the Shades menu and choose a darker shade (preferably black).
10. Again, while the duplicate piece of the pie is still selected, move the pointer to the Arrangement menu and choose 'Send to Back'.



11. To further enhance the pie chart, choose 'Select all of Document' from the Edit menu, then choose a bolder line (preferably 2nd from the top) from the Lines menu.
12. You can also change the type style at this time (headings, sub-headings, etc). Select the text by clicking on it, and choose a different text style or type from the Type Style menu.

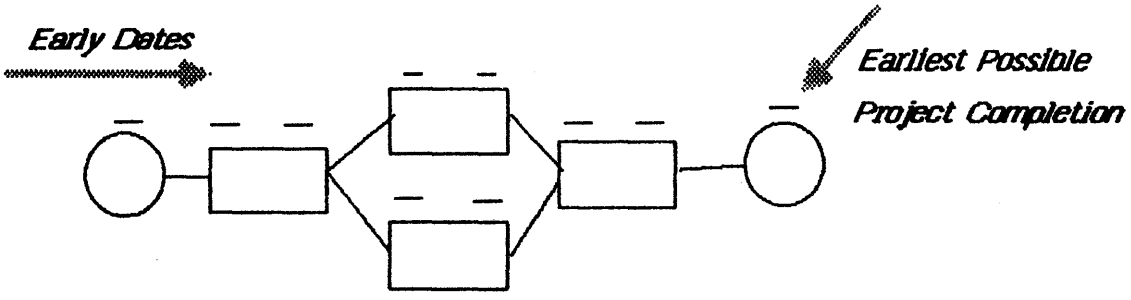
SOLUTIONS

LisaProject™ Early and Late Dates

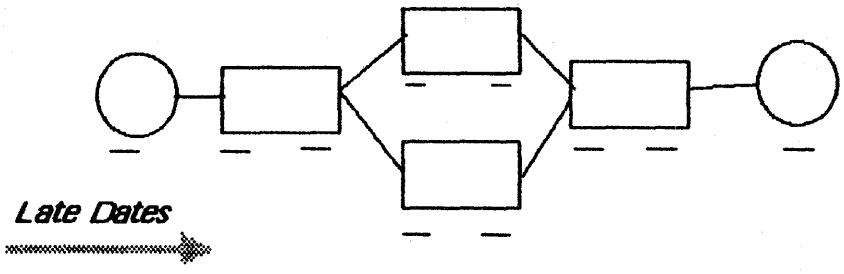
Objective: Use LisaProject to determine if there is any "slack time" within a scheduled project.

Solutions: LisaProject offers you two "time lines," so you can tell if there is any slack time in your project or can compare early and late dates and play "what if."

The first time line runs across the top of each task, from the start to the end milestone. This gives the early completion time. It shows you the earliest date a task can begin and end, given the current schedule. The end milestone will then give you the earliest time the entire project can be finished.



The other two dates appear along the bottom of each task. These indicate the latest date each task can begin and end and still make the final date indicated at the bottom of the end milestone. That bottom date is usually the same as the top one, but you have the option of setting a different one - to play "what if" and compare.



Early dates are different from late dates when a task has slack time -- that is, the task can slip its earliest possible start date and still not slip the entire project.

SOLUTIONS

Creating Labels with LisaDraw

Objective: To print from 1 to 100 labels using Lisa and your printer.

Lisa Solution: Use LisaDraw to create label template/form.

INGREDIENTS:

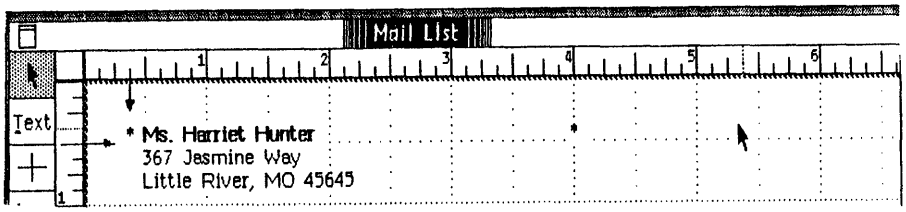
LisaDraw sheet of paper
Show Standard Ruler
Daisy Wheel or Dot Matrix printer
(Tractor Feed if using Daisy Wheel and doing large quantity of labels)
The label type you will be using.

SET UP:

- Hold the label up to the screen. Using the ruler as your guide, type an asterik at the point on the label where the first line will be typed.
- Duplicate the asterik across for as many labels as you have, using the ruler as your marker.
- Then duplicate this entire first row down the entire page.
- Select entire document, then copy this template/page to create additional pages for additional labels.
- Create a stationary pad and rename it.


LABEL FORM

EXAMPLE: Label Size - 1" X 3 1/2" Page - 2" across, 11" down Type - Pin-feed



PRINTING: (1) Before printing - do a test. Insert a blank sheet of paper and print out a few labels as a test run. Hold test sheet against actual labels to see if all information is aligned.

NOTE: Make sure you always start the labels at the same position each time.

(2) For a few labels, 1-5, insert labels and set adjustment lever to "friction" to avoid slipping.

(3) For a larger quantity of labels, adjust tractor feed on the Daisy Wheel or adjustments on the Dot Matrix to label width.

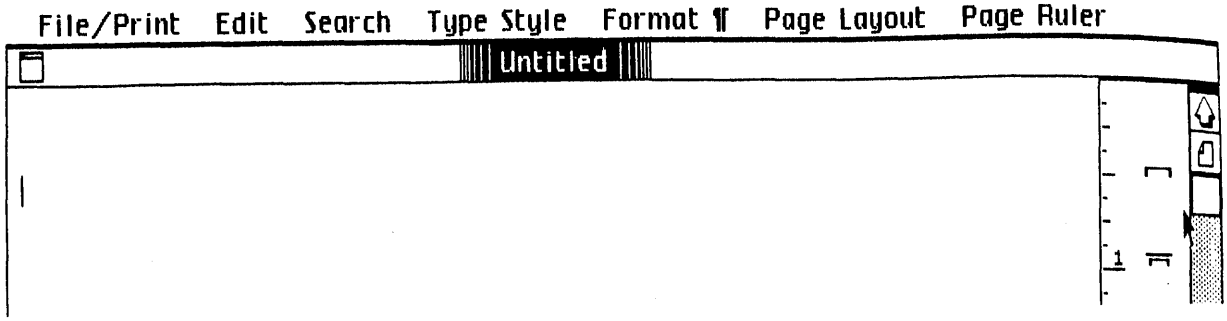
SOLUTIONS

Headers and Footers with LisaWrite

Objective: To insert headers and/or footers in a LisaWrite document.

Lisa Solution: Use LisaWrite's simple formatting aids in the pulldown menus to set headers and footers. Choose 'Show Page Ruler' from the Page Layout menu.

If you are inserting a header, place the insertion point on the line immediately below the header marker in the ruler.



If you are inserting a footer, scroll to the bottom of the page and place the insertion point on the line immediately below the footer marker in the ruler.

Type the text of your header or footer. (Use any formatting features you want to complete the header or footer.)

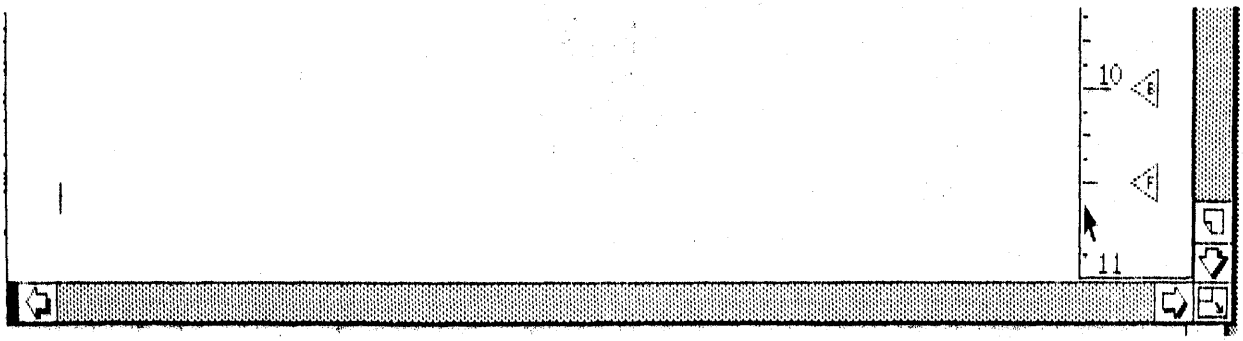
Choose 'Hide Page Ruler" from the Page Layout menu.

SOLUTIONS

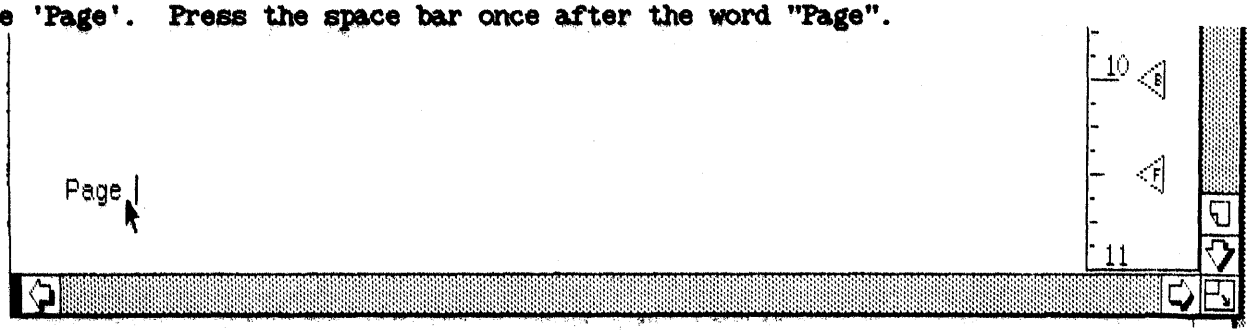
Automatic Page Numbers with LisaWrite

Objective: To automatically number several pages of a LisaWrite document.

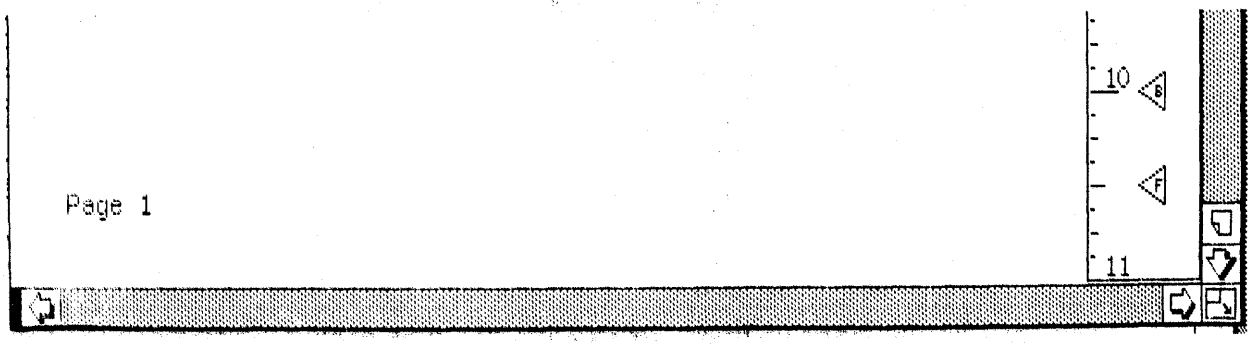
Lisa Solution: Choose "Show Page Ruler" from the Page Layout menu. On the first page place the pointer in the bottom margin below the line to the left of the footer mark and click the mouse button. (The insertion point at the far left margin appears.)



Type 'Page'. Press the space bar once after the word "Page".



Choose 'Insert Page Number' from the Page Layout menu. Lisa inserts the number "1" and all subsequent page numbers automatically.



To center the footer, select the text and choose 'Center' from the Format menu.

Solutions

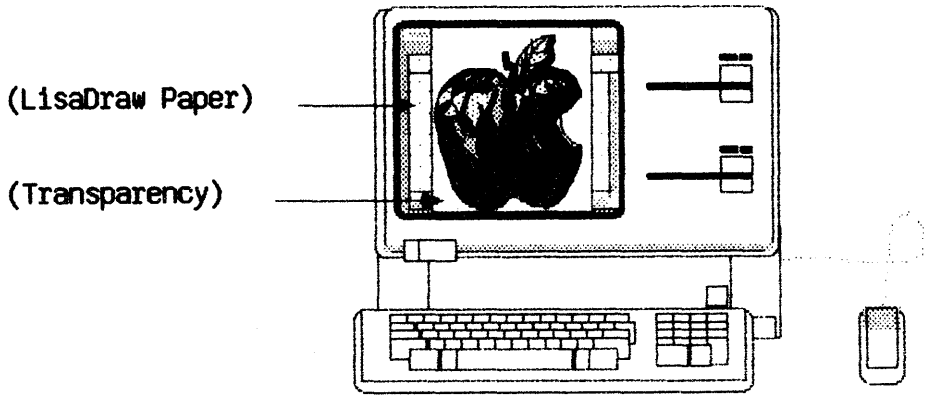
Tracing With LisaDraw

Objective: To be able to trace an item to a LisaDraw document with ease.

Lisa Solution: Tear off a piece of LisaDraw stationary and open it up.

Be sure that the picture you are tracing is on traceable paper, i.e. transparency or tracing paper.

Tape the picture you wish to trace over the Lisa™ screen.



With the cursor (freehand symbol), trace the outline of the picture by holding down the mouse button and dragging it until the drawing is completed.

When completed, if you are not satisfied, you can choose 'Select All of Document' and 'Clear' from the edit menu (and begin again). You can also change portions of the drawing by choosing 'Reshape' in the edit menu, grab the handles and move around until you are satisfied.

Text File Transfer Between Lisa™ and the Apple /// Personal Computer

Objective: To allow a Lisa™, equipped with LisaTerminal, to communicate with an Apple /// Personal Computer, equipped with Access ///.

Solution: Communication between the Lisa and the Apple /// requires the following:

A Lisa equipped with LisaTerminal

An Apple /// Equipped with Access ///

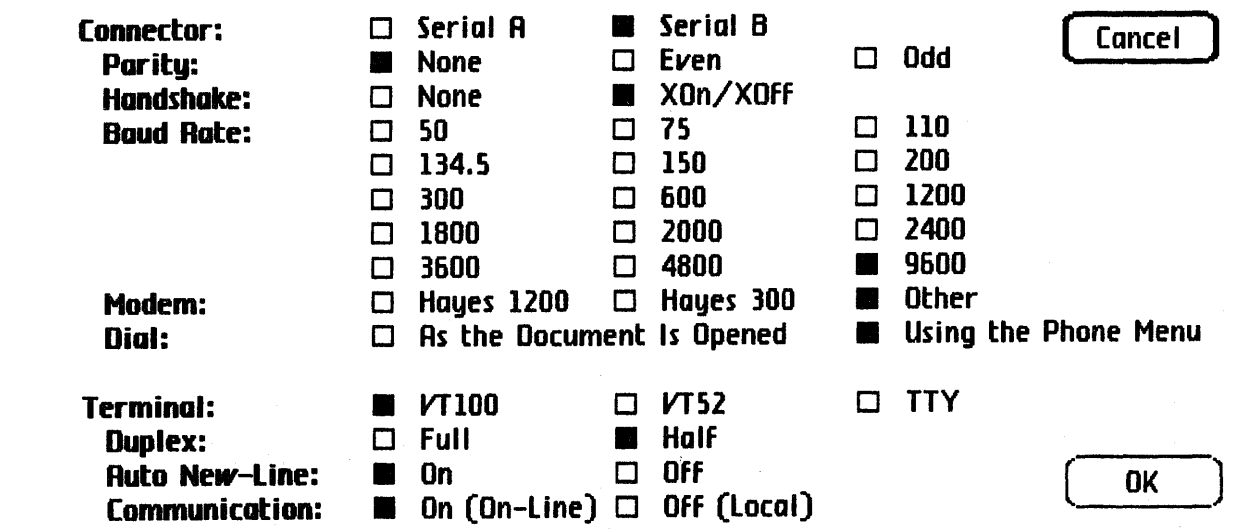
A standard communication cable

A modem elimator (full modem) cable

Using the following method, you can communicate either character by character information or entire files in either direction. The following description covers communications with an Apple /// Personal Computer located near your Lisa only. If you want to communicate over telephone lines, you must replace the null modem cable with a modem for each computer.

Setting up to communicate

Upon opening a new sheet of LisaTerminal paper, open the computer compatibility dialog box. The following figure is an example of a Lisa set up to communicate with an Apple /// system.



The Lisa™ must be configured exactly as shown with the following exceptions: either connector may be selected, as defined in preferences. The baud rate may be set to any desired value as supported by Access /// (note: the serial A connector does not support 3600 baud communications).

To set up the Apple ///, boot up Access /// and enter the setup mode by hitting the Open-Apple key and the S key simultaneously. Using the cursor arrow keys, set up the following characteristics:

ANSI mode

Send LF after CR

7 bits per character

Enable XON/XOFF

Half duplex

Wraparound

Parity: None

Any settings not specifically mentioned can be set to your convenience. The baud rate should be set to the same value as the Lisa baud rate. Hitting Ctrl-S saves the values entered. To communicate, select resume terminal mode.

Communicating

Plug the communications cable and the modem eliminator together. Plug one end into the selected Lisa serial connector B and the other into the connector on the back of the Apple /// system. It does not matter which end goes where.

If LisaTerminal and Access /// are both running and set up correctly, communication is now established. If you type in your LisaTerminal document, the characters appear on both computers. Similarly, if you type on the Apple ///, the characters should appear both on the Apple /// and the LisaTerminal screen area.

To send information to the Apple ///, open the Lisa document, copy the section that you want and paste it into the bottom of the screen area of your LisaTerminal document. To send a file to Lisa, set the 'remember/forget' field of the comfort characteristics dialog box to remember. On the Apple ///, enter 'setup mode' and select 'exit terminal mode'. From the main menu select 'transmit a file', then press return. Select the file to be transferred by specifying the complete file pathname.

Note: Only ASCII files may be transmitted in this manner.

Solutions

Low Cost 35mm Slide From Lisa Printed Output

Objective: Create black and white "camera ready" graphics (text and/or graphic objects) so that any graphics company can create 35mm multi-color for less than $10.

Lisa Solution:

General

Print a hard copy of output on a Dot Matrix Printer.

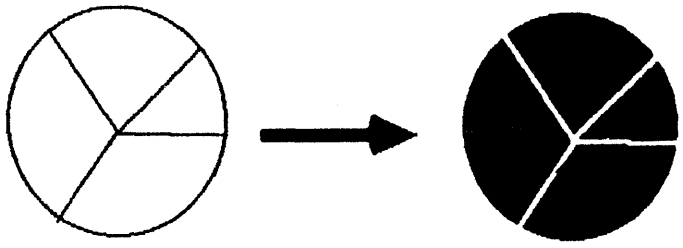
Take it to the graphics company and request what you want done.

The graphics company will do the rest.

Hints for better quality slides:

If different colors are desired for each section of a pie (or graph), black fill the section(s) and pull each section apart 1/16", then it will be easier for the graphics company to designate the correct color for the corresponding section of pie.

The space between segments will become the white line separating them.



Avoid typing text on top of colored fill - type it on the outside perimeter of the pie.

When creating your slide, use 1.5 to 1 vertical to horizontal ratio. It is best to frame your graphics in a 9" x 6" box, which you can "cut" just before printing so you can be sure the picture fits in the frame.

Request dark blue background when having slides done.

Text should be no smaller than 1/4".

Text shows best in white, yellow, or light blue.

(A sample 35mm slide is enclosed for all Personal Office Systems Dealers.)

apple computer inc.
20525 Mariani Avenue
Cupertino, California 95014
(408) 996-1010

August 8, 1983

Authorized Personal Office Systems Dealers:

Apple has begun shipping Lisas to OEM's and Independent Software Developers. These developers will be contacting you in order to obtain service for their Lisas and peripheral Apple equipment as needed, either by purchasing an on-site agreement from you or by bringing in the faulty equipment.

The 90-day limited warranty is of course being honored for these machines. All developers should be able to show you a proof-of-purchase from Apple indicating the date of purchase. Should the developer not have such proof, please have the developer contact the Program Coordinator/Third Party Products for POS at 408-973-3886.

We are very pleased with the response from independent software developers who plan on developing products for the Lisa system. A list of these developers and their product plans is being prepared and will be sent to you shortly.

We appreciate any assistance you can extend in the way of service to our developers. Thank you.

Technical Support
Personal Office Systems Division
APPLE COMPUTER, INC.

APPLE Advertising CO-OP

SPECIAL ADVERTISING ANNOUNCEMENT SCHEDULE UPDATE

LISA ads featuring the 4-color business insert, including Authorized Personal Office Systems Dealer's store name and address, will be running as follows:

American Way	September Issue
Business Week	September 26th
Forbes	September 22nd
Fortune	September 19th
Money Magazine	
Complete Guide to Personal Computing	September Issue
United Mainliner	September Issue

This LISA ad is entitled **"Maserati For Your Mind"**

August 1983

Circulate and Post