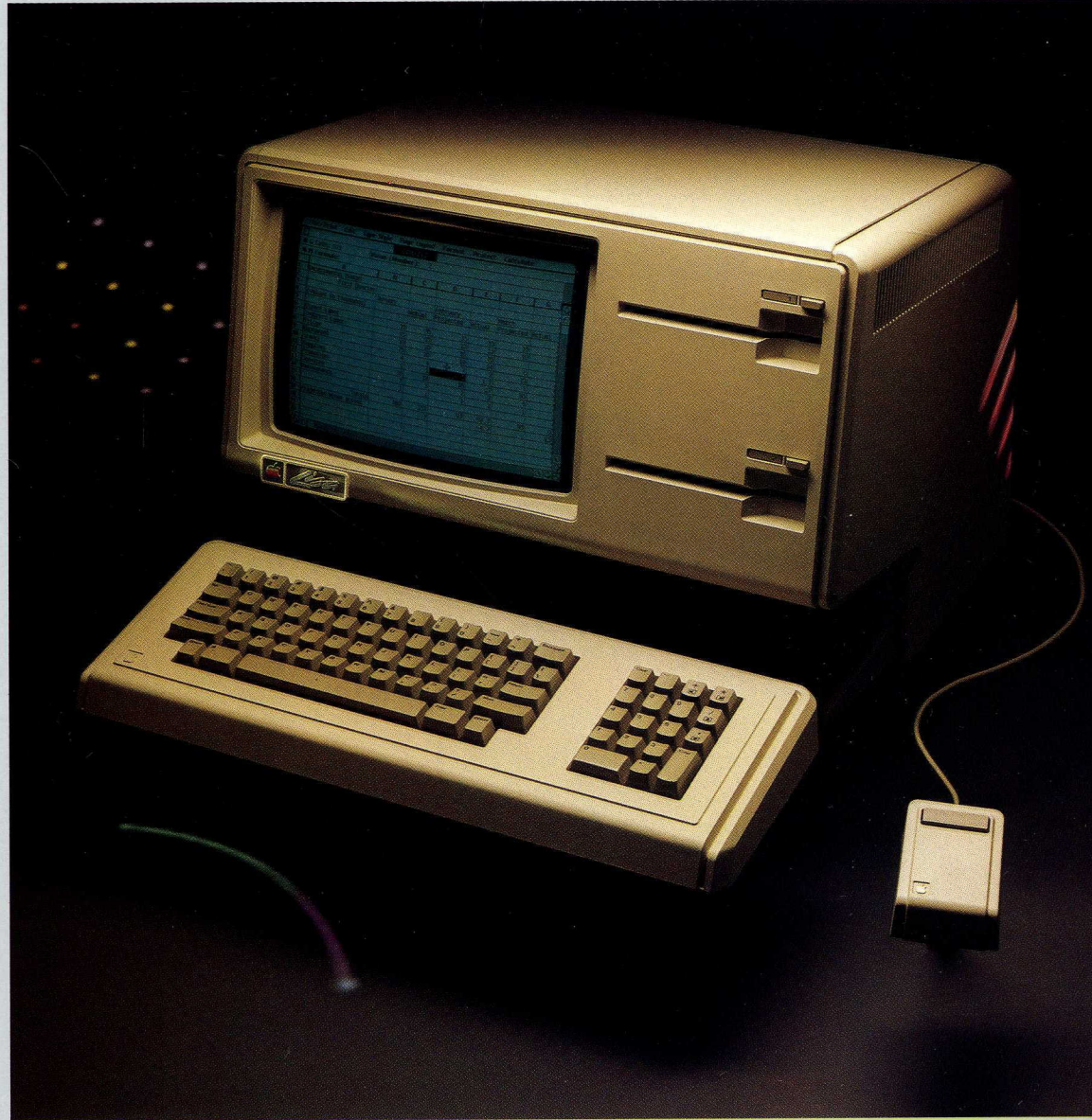Lisa's hardware components combine to form an extremely sophisticated and powerful personal computer for the office.

At the heart of the system is the 32/16-bit MC68000 microprocessor, the most highly praised chip of recent years. One megabyte of memory is standard. Two disk drives are integral and provide 1.7 megabytes of formatted storage capacity. And a bit-mapped screen with more than a quarter million dots makes possible detailed graphics and a variety of typestyles.

Lisa's revolutionary technology uses graphic images rather than confusing computer commands to represent powerful computer functions such as editing and starting a new document. These graphics, together with the mouse, a simple selecting device, let users interact intuitively with the system.

As an integrated personal office system, Lisa™ easily accommodates a host of peripheral devices such as printers, modems, and hard disk drives. Lisa can also be configured in a network and as a terminal for your mainframe or minicomputer.

Lisa is the most advanced personal computer available for the office. You don't have to choose between ease of use, simplicity of design, tested reliability, and powerful features and capabilities — Lisa lets you have them all.

Lisa is adaptable to many different conditions.
• Lisa's attractive styling and compact, low-profile, integrated design make it a natural for any office environment.
• The system console houses a 12-inch display, two disk drives, and the system electronics. The keyboard and mouse are separate.
• Lisa is silent in operation, thanks to convection cooling.

A high-resolution screen complements Lisa's revolutionary Graphics Mouse Technology.
• The bit-mapped display produces 364 lines of 720 dots each (more than a quarter of a million dots total) for crystal clear images.
• Lisa produces multiple type-styles—including large, presentation-size styles, proportional spacing, and bold, italic, underlined, and shadow printing.

As attractive as it is functional, the Lisa system is well designed in every sense of the word.
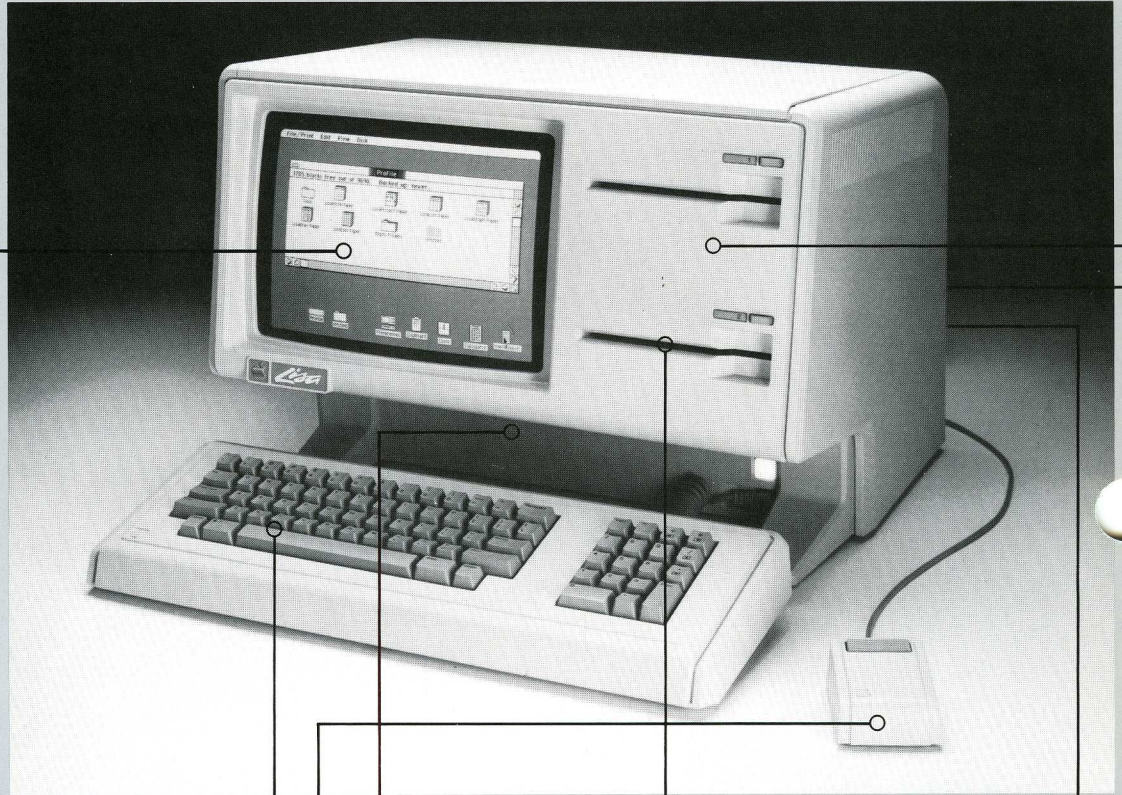
Bit-Mapped Display The bit-mapped display screen provides crisp, clear images of text and graphics. Its high-resolution, low-glare design features high-efficiency phosphor and black-on-white display to reduce eye fatigue.

Keyboard The separate keyboard can be used on the tabletop or in your lap. Its lightweight, sturdy design features a standard type-writer layout, with 10-key pad and N-key rollover for the speed fast typists need.

Mouse/Pointer The mouse enables users to take advantage of the naturally harmonious relationship between hand and eyes. Even the most complex functions are as easy as "point and select."

Disk Drives Standard are two built-in, high-density, 5¼-inch, floppy disk drives providing 1.7 megabytes of formatted capacity. Hard-disk drives can also be added.

Microprocessor Lisa is built around the extremely fast, powerful MC68000—a 32-bit microprocessor with a 16-bit external data path. It addresses one megabyte of main memory. Lisa is also equipped with a real-time clock (backed up by a battery), allowing you to set the time, day, and date. Lisa will then time-stamp all documents you create or update.

Built-In Ports Lisa has two built-in RS-232 serial ports and one par-allel interface port for connecting printers, modems, hard disk drives, and other peripheral devices.

Expansion Slots Three expan-sion slots enable you to plug in parallel and other I/O boards to expand the capabilities of your Lisa system. The "mistake-proof" instal-lation design virtually eliminates the chance of damaging boards or con-necting them incorrectly.

Modular Components Most components are modular—includ-ing the disk drives and power sup-ply—and are easily removed for servicing or swapping.

- Graphics are completely integrated. Special symbols and common shapes are also available.

Extensive disk storage capacity with built-in file protection.
- Two high density, 5¼-inch mini-floppy disk drives are standard. Each disk holds up to 860,000 characters (formatted capacity).

- Software controls the loading and release of diskettes.
- Lisa supports the use of the Apple ProFile™ hard-disk drive.

Lisa can grow as your system needs evolve and grow.
- Two RS-232 ports are located on the rear panel, one with full modem capability.
- A parallel port is also provided, for connecting a ProFile hard disk or Apple's high-resolution Dot Matrix Printer.

- Three expansion slots are provided for special-purpose cards.
- AppleNet, Apple's local area network, will enable you to connect Lisas, as well as Apple IIs and ///s.

**Reliable hardware that's easy to service.**
- Diagnostics are built in.

- All the internal components are modular (except for high-voltage video modules), so they can be removed easily for servicing.
- Floppy disks are active only when accessed.
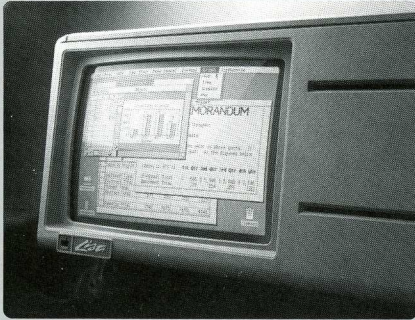
## A Screen You Don't Get Tired of Looking At
- Lisa's bit-mapped screen has 364 lines of 720 dots each—more than a quarter million dots in all.
- High-resolution screen output produces crisp graphics and text in eleven different type sizes and styles. Each typestyle, including bold, italic, shadow, and underline, has been customized to be easily read.
- Black-on-white image with software-controlled contrast is extremely easy on the eyes.
- The screen's high-efficiency phosphor, and the automatic dimming or blanking of the screen when Lisa remains untouched for a user-specified period of time, prolong screen life and prevent ghosting that comes from screen burning.
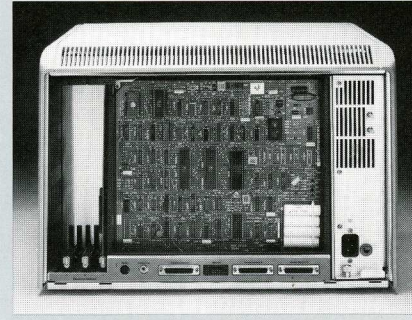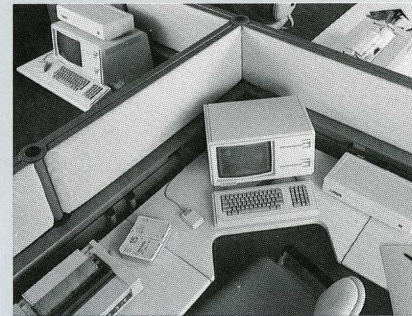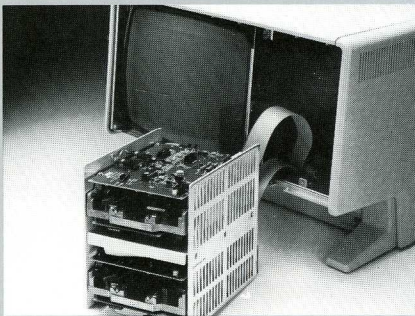
No More Waiting for Service
- Lisa is built to be reliable, so your service needs will be few and far between.
- If you do need service, you can easily remove most components yourself and swap modules.
- Lisa incorporates several internal hardware protection mechanisms, such as offset card connectors, card-lift tabs, and interlocks that automatically turn off the power and drain residual voltage when the front bezel or rear panel are removed. (The high-voltage CRT and video board circuitry are inaccessible except to trained service personnel.)
- Built-in diagnostics test system integrity.

Lisa As An Integrated System
- All input/output functions are handled by three microprocessors and a versatile interface controller operating on a shared bus.
- Two serial ports are built in—one of which has full modem capability, including the support of auto-dial and auto-answer modems.
- A parallel port is provided to interface directly with either a hard disk or a dot-matrix printer.
- Included is a jack for composite video for external high-resolution monitor displays.
- Configure your Lisa to be used as a stand-alone personal office system, within a network of other Lisas, or as a terminal for a mini- or mainframe computer; or combine these capabilities to suit your individual needs.
- Connect more than one printer to Lisa, for example, an Apple Dot Matrix and an Apple Daisy Wheel Printer.

Human Engineering That's Truly Revolutionary
- The mouse lets you point to and select the function you want, instead of having to learn complicated commands and type them in.
- Detached keyboard with auto-repeat keys and built-in keypad makes data entry fast.
- Convection cooling system makes Lisa totally silent in operation.
- Lisa's compact design fits comfortably almost anywhere.
- Contrast-enhancement screen provides glare-free viewing.

Display:
- 12 inch screen (measured diagonally).
- Full-screen bit-mapped display:
  - 364 lines by 720 dots.
  - up to 45 lines of 144 characters.
- 60 Hz refresh rate.
- 64 levels of contrast under software control.
- Glare-reducing screen (enhances contrast).

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

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

Disk storage:
- 860K bytes (per drive) formatted storage (1.4 megabytes unformatted).
- 62.5 tracks (10,000 bits) per inch.
- Automatic head loading and disk eject under software control.
- Smart interface with 6504 processor.

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

Real-time clock:
- Software on-off control.
- Interval and event timing.

Main memory:
- 16K bytes of startup ROM.
- Up to one megabyte of RAM.
- Parity error detection.

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

Communications interface:
- Two serial ports:
  - Intelligent controller:
    - full-function, programmable (Asynch, bisynch, SDLC, HDLC).
- RS-232C with half- or full-duplex channels.
- Full modem control and ring indicator on one channel.
- Baud rates software-programmable.
- One parallel port:
  - 6522 interface adapter.
  - 8-bit bidirectional with handshake control.

Audio output:
- Built-in speaker with software-controllable tone generator.

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