

## Overview

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The Apple® Macintosh® IIsi is the lowest-cost member of the Macintosh II line, Apple Computer's most powerful line of Macintosh personal computers. Offering high performance and a wide range of expansion and video options, the Macintosh IIsi is ideal for people who need a powerful but very affordable Macintosh system that can easily grow with their needs over time.

Like other Macintosh II systems, the Macintosh IIsi offers excellent performance. At the heart of the Macintosh IIsi is a 20-megahertz 68030 microprocessor that lets you run Macintosh applications up to five times faster than the Macintosh Classic®. The 68030 microprocessor also lets you work under A/UX®, Apple's implementation of the AT&T UNIX® operating system. And with future versions of Macintosh system software, the 68030 microprocessor will allow you to run more applications with the same amount of dynamic random-access memory (DRAM) through a new feature, virtual memory.

The Macintosh IIsi comes with built-in support for four Apple monitors as well as third-party monitors, so you can choose the monitor that best suits your needs—then simply plug it in. In addition, by adding a video expansion card, you can use any other Apple or third-party monitor with the Macintosh IIsi.

The Macintosh IIsi can be easily expanded to incorporate new capabilities or increase system performance. An internal expansion slot for either a NuBus<sup>®</sup> card or an 030 Direct Slot card allows you to add one of hundreds of high-performance expansion cards that are available today for communications, video, coprocessing, and other uses. An optional floating-point math coprocessor also can be added to speed mathematical calculations generated by applications such as CAD/CAM and sophisticated graphics. And eight external ports allow you to connect popular peripheral equipment such as printers, scanners, and CD-ROM disc drives, as well as access the built-in networking capabilities found in all Macintosh computers.

One exciting new Macintosh advancement incorporated into the Macintosh IIsi is sound input. The Macintosh IIsi comes with a microphone and phono jack adapter, which let you input your voice into documents, presentations, and even electronic mail messages.

Best of all, the Macintosh IIsi provides all of the important benefits for which the Macintosh is known—powerful technology that's easy to use, thousands of applications that work well together, “plug-and-play” compatibility, and the assurance that all Macintosh components will work together smoothly.

And since the Macintosh IIsi has been designed to run the next generation of innovative Macintosh applications—those supported by system software version 7.0—the value of the Macintosh IIsi will last, and even improve, over time.

# Features

# Benefits

- 68030 microprocessor, running at 20 megahertz
- Built-in Memory Management Unit (MMU)

- Delivers high-speed system performance and enables the Macintosh II to run applications up to five times faster than the Macintosh Classic.
- Supports A/UX, Apple's implementation of the AT&T UNIX operating system.
- Will support the virtual memory feature in future system software versions.

- Optional 68882 floating-point math coprocessor, running at 20 megahertz

- Provides fast processing of mathematical calculations generated by applications such as CAD/CAM and sophisticated graphics packages.

- Multiple monitor options including:
  - Built-in video support for four Apple monitors: Macintosh 12", RGB Display, AppleColor<sup>®</sup> High-Resolution RGB Monitor, Macintosh 12" Monochrome Display, and Apple Macintosh Portrait Display
  - Support for other Apple or third-party monitor that requires a video expansion card

- Lets you choose from the most popular Apple displays, both color and monochrome.
- Eliminates the need for a separate video card or special driver software.
- Lets you work with up to 256 colors or shades simultaneously on the Macintosh Display and the AppleColor High-Resolution RGB Monitor, up to 256 shades of gray with the Macintosh Portrait Display.
- Lets you work with the monitor that best suits your needs—including monitors that produce photographic-quality color.

- One internal expansion slot for either a NuBus card or an 030 Direct Slot card

- Lets you incorporate new capabilities or increase system performance by adding an expansion card for communications, graphics, emulation, and more.
- Lets you add one of hundreds of NuBus cards that are already available for all other Macintosh II systems.
- Lets you add one of the many 030 Direct Slot cards that are available for the Macintosh SE/30 personal computer.

- Sound input

- Allows you to add voice comments to voice-capable word processing, spreadsheet, presentations, and other documents.

- Apple SuperDrive<sup>®</sup>

- Allows convenient transfer of data (1.4-megabyte floppy disk drive) files between Macintosh, OS/2, MS-DOS, and Apple II systems.
- Provides almost twice the storage capacity of 800K disk drives.

- 40- or 80-megabyte internal hard disk drive

- Provides ample storage capacity internal hard disk drive for files and applications.

# Features

# Benefits

- Eight built-in ports:
  - One SCSI port
  - One Apple Desktop Bus<sup>®</sup> (ADB)
  - External disk drive port
  - Two serial ports
  - One sound-in port
  - One sound-out port
  - One video port

- Provide support for up to seven popular peripherals such as CD-ROM drives, scanners, and printers.
- Permit communication with the keyboard, mouse, and other devices.
- Support either an external 800K or 1.4-megabyte Apple SuperDrive floppy disk drive.
- Provide access to LocalTalk<sup>®</sup> cable-based networks, which allow you to connect Macintosh II systems to other computers and to LaserWriter<sup>®</sup> printers through the Apple-Talk<sup>®</sup> network system.
- Support sound input via microphone or phono jack adapter.
- Supply high-quality, four-voiced digital sound output that is compatible with all applications that use Macintosh sound.
- Provide connection to all monitors supported by the Macintosh II computer's built-in monitor support.

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- 1 megabyte of on-board RAM, expandable to 17 megabytes

- Lets you work with large amounts expandable to 17 megabytes of data, such as large spreadsheets, scanned images, and sound files.

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- 512K of ROM, including support for:
    - 32-bit addressing
    - Hierarchical File System
    - 32-Bit QuickDraw<sup>®</sup>
    - Sound input

- Enables future 32-bit versions of support for the Macintosh Operating System to address up to 4 gigabytes of memory.
- Organizes document storage and allows easy access to files.
- Enables color systems to display up to 16 million colors simultaneously.

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- Choice of keyboards (sold separately)
    - Apple Keyboard
    - Apple Extended Keyboard

- Apple Keyboard includes a numeric keypad and cursor keys.
- Apple Extended Keyboard also includes 15 function keys, letting you work effectively with alternate operating systems, terminal-emulation programs, and other data communications applications.

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- Macintosh user interface, including mouse, icons, windows, and pull-down menus

- Makes most applications intuitive and easy to learn.
- Reduces training and support costs.
- Provides a consistent user interface across applications.

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- MultiFinder<sup>®</sup> operating system

- Allows multiple applications to be opened concurrently.
- Lets you easily cut and paste parts of documents from one application to another.
- Allows background tasks to be run while you interact with applications in the foreground.

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- Software compatibility

- Lets you run virtually all Macintosh software.

# Product Details

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## 68030 microprocessor

- The 68030 microprocessor runs at 20 megahertz and features a built-in Memory Management Unit (MMU). The MMU supports the A/UX operating system and provides the capabilities necessary to support virtual memory, a new feature of Macintosh system software version 7.0. Virtual memory lets you work with more applications without the need for large amounts of DRAM by setting up sections on the hard disk for easy memory swapping.
- 256-byte data and instruction caches accelerate overall system performance by eliminating one wait state that occurs with the 68020 processor.

## 68882 math coprocessor (optional)

- Customers who work routinely with software such as sophisticated CAD/CAM and graphics applications may want to add the Motorola 68882 floating-point math coprocessor to their systems. The 68882 optimizes the computer's performance during math-intensive calculations.

## RAM configurations

- The Macintosh IIx comes with 1 megabyte of RAM on the main logic board. Up to 16 megabytes of RAM can be added by installing Single In-line Memory Modules (SIMMs). Some possible configurations include:
  - 2 megabytes (1 megabyte on main logic board; four 256K SIMMs)
  - 3 megabytes (1 megabyte on main logic board; four 512K SIMMs)
  - 5 megabytes (1 megabyte on main logic board; four 1-megabyte SIMMs)
  - 9 megabytes (1 megabyte on main logic board; four 2-megabyte SIMMs)

- 17 megabytes (1 megabyte on main logic board; four 4-megabyte SIMMs)
- The Macintosh IIx uses 100-nano-second (or faster) fast-paged mode RAM.

## ROM

- A ROM SIMM socket on the logic board provides an easy ROM upgrade path.

## Expansion slot

- One NuBus card or 030 Direct Slot card can be added to the Macintosh IIx by connecting it to a Macintosh IIx adapter card (sold separately).
- NuBus provides a multiplexed, 32-bit address bus and data bus on a single 96-pin connector. The NuBus architecture supports data transfer rates up to 3.75 megabytes per second.
- The 030 Direct Slot provides a 32-bit slot directly to the microprocessor via a 120-pin connector. This slot is compatible with expansion cards available for the Macintosh SE/30 personal computer.
- The Motorola 68882 floating-point math coprocessor is on the adapter cards.

## SCSI

- SCSI (Small Computer System Interface) is a high-performance interface bus used to connect hard disks and other SCSI-based devices, such as the Apple CDSC<sup>®</sup> CD-ROM drive, the Apple Scanner, and the Apple Personal LaserWriter<sup>®</sup> to the Macintosh IIx. This single interface can support up to seven SCSI peripheral devices.

## Network support

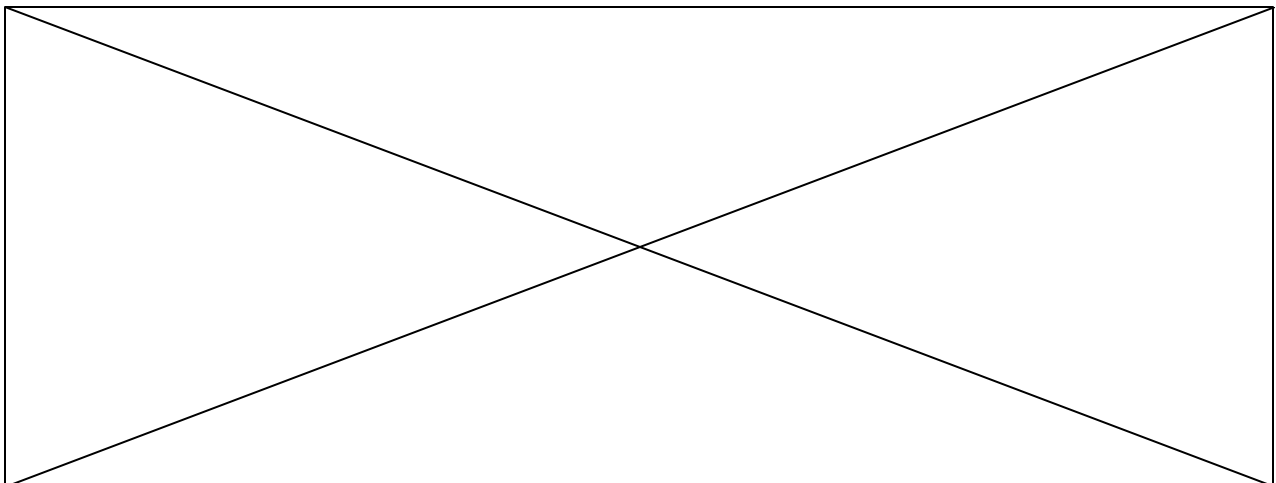
- The Macintosh IIx provides full ROM support for all AppleTalk protocols, and includes built-in serial ports for LocalTalk network connections.

## Operating system support

- Macintosh system software includes:
  - System software version 6.0.6 or later (the Macintosh Operating System) with System Startup disk.
  - System Additions disk (includes utilities such as the Apple File Exchange, HDSC Setup, CloseView, Disk First Aid<sup>®</sup>, and Font/DA Mover).
- HyperCard<sup>®</sup> 2.0 Home, Addresses with Audio, Appointments with Audio, Audio Palette, and Audio Help stacks.
- A/UX version 2.0.1 (optional) is compatible with the Macintosh IIx.

## Sound input

- The Macintosh IIx has been designed to accept and process sound as well as generate it. Using a microphone or phono jack adapter, and appropriate software, you can speak into the computer to create electronic voice messages and add voice comments to files. Sound entering the computer is monaural, 8-bit sound. It is filtered through a custom filter/pre-amplifier chip, converted to digital form, and stored in DRAM or directly on the hard disk.
- An Apple electret microphone and phono jack adapter are included.



# Technical Specifications

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## Microprocessor

- MC68030, 32-bit architecture (includes built-in Memory Management Unit)
- 20-megahertz clock speed
- Two 256-byte, built-in instruction and data caches

## Coprocessor (optional)

- MC68882 floating-point math coprocessor
- 20-megahertz clock speed (IEEE standard 80-bits precision)

## Memory

- 1 megabyte of on-board RAM, expandable to 17 megabytes
- 512K of ROM, with ROM SIMM access for future upgrades
- 256 bytes of parameter memory

## Disk drives

- Built-in Apple SuperDrive 1.4-megabyte floppy disk drive (optional external 1.4-megabyte or 800K disk drive available)
- Internal Apple SCSI hard disk drive (1/3 height, 40 or 80 megabytes)
- Optional external Apple SCSI hard disk (many capacities available)

## Monitors

- Supports four Apple color and monochrome monitors as well as some third-party monitors, including:
  - Macintosh 12" RGB Display: up to 256 colors, 512 by 384 pixels
  - Apple Color High-Resolution RGB Monitor: up to 256 colors, 640 by 480 pixels
  - Macintosh 12" Monochrome Display: up to 256 shades of gray, 640 by 480 pixels
  - Apple Macintosh Portrait Display: up to 16 shades of gray, 640 by 870 pixels
- When equipped with a video expansion card, supports other Apple and non-Apple monitors; see your authorized Apple dealers for details.

## Interfaces

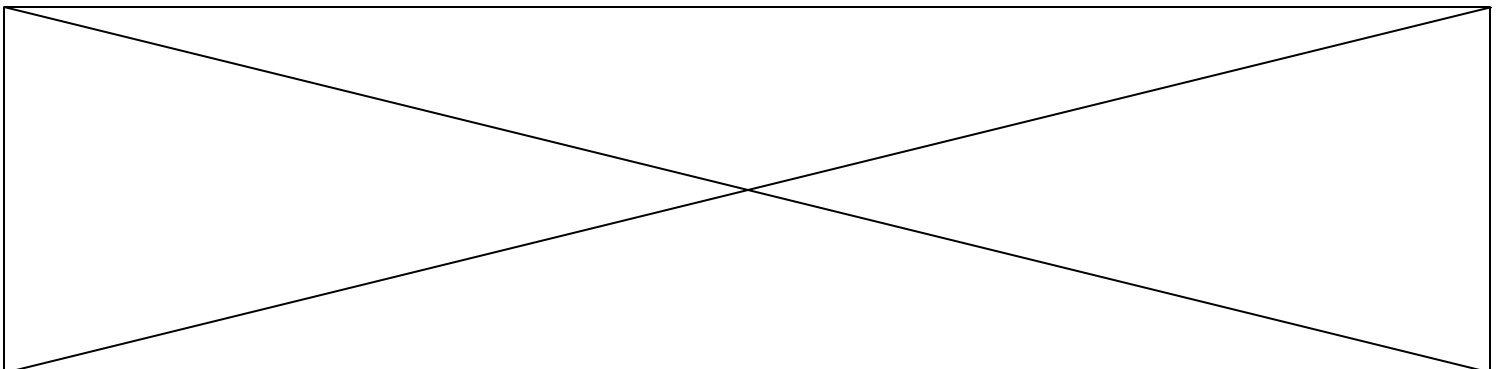
- One Apple Desktop Bus (ADB) port, supporting a keyboard, mouse, and other devices daisy-chained through a low-speed, synchronous serial bus (a maximum of three chained devices is recommended)
- One DB-15 video port, supporting color and monochrome monitors of various sizes and resolution
- Two serial (RS-232/RS-422) ports, 230 kilobits per second maximum (up to 0.920 megabits per second if clocked externally)

- SCSI interface using a 50-pin internal connector and a DB-25 connector for the first external device; all subsequent SCSI-based peripheral devices use standard SCSI-to-SCSI interface cables
- Internal expansion slot, supporting a NuBus or an 030 Direct Slot expansion card
- External 3.5-inch floppy disk drive (800K or 1.4-megabyte) interface
- Stereo sound output port for external audio devices
- Sound input port for monaural sound input

## Sound input

- Monaural 8-bit sound
- Sound samples can be made at 22 or 11 kilohertz.
- Macintosh Audio Compression Expansion (MACE) sound utility supporting 3:1 or 6:1 compression, which allows up to 3 hours of sound to be stored on a single 40-megabyte hard disk

*(continued)*



*Macintosh IIx with Apple Extended Keyboard, mouse, microphone, and 13-inch Apple Color High-Resolution RGB Monitor.*

*Macintosh IIx with Apple Extended Keyboard, mouse, microphone, and Macintosh 12" RGB Display or Macintosh 12" Monochrome Display.*

*Macintosh IIx with Apple Extended Keyboard, mouse, microphone, and Apple Portrait Display.*



# Macintosh IIsi

## Technical Specifications (continued)

**Microphone**  
 - "Handsfree" omnidirectional electret microphone

**Sound generator**  
 - Apple's custom digital sound chip provides 8-bit stereo sampling at 44.1 kilohertz, and includes four-voice wave-table synthesis—capable of driving stereo headphones or other stereo equipment through the sound jack.

**Mouse**  
 - Apple Desktop Bus Mouse; mechanical tracking; optical shaft or contact encoding; 100±10 pulses per in. (3.9±0.39 pulses per mm) of travel

**Clock/calendar**  
 - CMOS custom chip with long-life lithium battery

**Electrical requirements**  
 - Line voltage: 120 volts AC, RMS  
 - Frequency: 47 to 63 hertz, single phase  
 - Power: 100 watts maximum

**ADB power requirements**  
 - Maximum power draw for all ADB devices: 500 milliamps (a maximum of three ADB devices, daisy-chained to the port, is recommended)  
 - Mouse draws 80 milliamps.  
 - Keyboard draws 25 to 80 milliamps (varies with keyboard model used) (the practical total of ADB devices is three daisy-chained to the port).

**Size and weight**  
**Main unit:**  
 - Height: 4 in. (10 cm)  
 - Width: 12.4 in. (31 cm)

- Depth: 14.9 in. (37.2 cm)  
 - Weight: 10 lb. (4.5 kg)

**Mouse:**  
 - Height: 1.1 inches (2.8 cm)  
 - Width: 2.1 inches (5.3 cm)  
 - Depth: 3.8 inches (9.7 cm)  
 - Weight: 6 ounces (.17 kg)

**Operating environment**  
 - Operating temperature: 50° F to 104° F (10° C to 40° C)  
 - Storage temperature: -40° F to 116.6° F (-40° C to 47° C)  
 - Relative humidity: 5% to 95%, noncondensing  
 - Maximum altitude: 10,000 ft. (3048 m)

## Ordering Information

Macintosh IIsi 2/40  
 Order No. M0363LL/A

With your order, you'll receive:  
 - Macintosh IIsi personal computer with 2 megabytes of RAM, built-in 1.4-megabyte Apple SuperDrive floppy disk drive, and internal 40-megabyte hard disk drive

- Mouse  
 - Microphone  
 - Complete setup, learning, and reference documentation  
 - System software and HyperCard software  
 - Training disks  
 - Limited warranty statement

Macintosh IIsi 5/80  
 Order No. M0364LL/A

With your order, you'll receive:  
 - Macintosh IIsi personal computer with 5 megabytes of RAM, built-in 1.4-megabyte Apple SuperDrive floppy disk drive, and internal 80-megabyte hard disk drive

- Mouse  
 - Microphone  
 - Complete setup, learning, and reference documentation  
 - System software and HyperCard software  
 - Training disks  
 - Limited warranty statement

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