

Technical Information

Main unit

Power Macintosh 9600/200 processor

A PowerPC™ 604e processor with the following features:

- 200 megahertz (MHz) processor clock
- built-in floating point unit (FPU)
- 50 MHz system bus

Power Macintosh 9600/233 processor

A PowerPC 604e processor with the following features:

- 233 MHz processor clock
- built-in floating point unit (FPU)
- 46.6 MHz system bus

Power Macintosh 9600/200MP processors

Two PowerPC 604e processors with the following features:

- 200 MHz processor clock
- built-in floating point unit (FPU)
- 50 MHz system bus

Memory

- At least 32 megabytes (MB) dynamic random-access memory (DRAM), supplied in removable Dual Inline Memory Modules (DIMMs); capacity to support expansion to a maximum of 768 MB
- 4 MB of video RAM (VRAM) on the optional monitor (video) card
- 4 MB of read-only memory (ROM)
- 8 kilobytes (KB) of nonvolatile parameter memory
- 512 KB of static RAM used as a level 2 cache. (The cache size is not expandable because the RAM is soldered to the logic board.)

For more information and instructions on expanding your DRAM, see Chapter 8, “Installing PCI Expansion Cards and Additional Memory,” in your *Power Macintosh User’s Manual*.

Optional monitor card

The optional monitor card includes 4 MB of VRAM; it cannot be expanded to a higher VRAM amount.

You can use the Monitors & Sound control panel or the Control Strip to set a video mode that is supported by both your monitor and the monitor card. Refer to the manual that came with your monitor for a list of video modes that it supports. The monitor card supports the video modes listed in the table below.

Resolution	Color depths	Vertical refresh rate
512 x 384	256, Thousands, Millions	60 Hz
640 x 480	256, Thousands, Millions	67 Hz
640 x 870	256, Thousands, Millions	75 Hz
800 x 600	256, Thousands, Millions	75 Hz
832 x 624	256, Thousands, Millions	75 Hz
1024 x 768	256, Thousands, Millions	75 Hz
1152 x 870	256, Thousands, Millions	75 Hz
1280 x 960	256, Thousands	75 Hz
1280 x 1024	256, Thousands	75 Hz
1600 x 1200	256, Thousands	60 Hz, 66 Hz, and 75 Hz

Note: On some monitors from manufacturers other than Apple, the connector pinout designates one pin for both green video and timing synchronization. These “sync on green” monitors are not compatible. If you’re not sure what type of monitor you have, check with your dealer.



Internal disk drives

The following drives come factory-installed in your computer:

- Apple SuperDrive 1.4 MB high-density floppy disk drive
- Apple SCSI hard disk drive (“Fast” SCSI)
- 12x-speed CD-ROM drive

For more information about “Fast” SCSI, see “SCSI Interfaces” later in this booklet.

Clock/calendar

- CMOS custom circuitry with long-life battery



WARNING If the clock begins to lose accuracy, see an Apple-authorized dealer or service provider for a battery replacement. Do not attempt to replace the clock battery yourself.

Keyboard

- Supports all Apple Desktop Bus (ADB) keyboards

Mouse

- Supports all models of the ADB mouse

Interfaces

- One ADB port supports up to three ADB input devices (such as a keyboard, mouse, and trackball) daisy-chained through a low-speed, synchronous serial bus
- Optional monitor port supports color and grayscale monitors of various sizes and resolutions. (See “Optional Monitor Card” earlier in this booklet.)
- Six internal expansion slots support peripheral component interconnect (PCI) expansion cards. Install only expansion cards that come with Macintosh drivers and are compliant with the PCI 2.0 standard. (If you have the optional monitor card installed, it is in one of your PCI slots.) NuBus™ cards cannot be used in these expansion slots.
- One printer port and one modem port. Both ports are RS-232/RS-422 serial ports, 230.4 Kbit per second maximum (up to 2.048 Mbit per second if clocked externally), and are compatible with GeoPort devices such as the GeoPort Telecom Adapter.
- One built-in 10Base-T Ethernet connector for direct connection to 10Base-T networks. (If both AAUI and 10Base-T connectors are plugged in, the computer uses the 10Base-T connector by default.)
- One built-in AAUI Ethernet connector for connecting to high-speed Ethernet networks. Requires the appropriate AAUI transceiver adapter (10Base-T, thin coaxial, or thick coaxial).
- One 3.5-mm sound output port for headphones or line-level devices
- One 3.5-mm sound input port for stereo sound input. The sound input port supports the Apple PlainTalk Microphone that comes with some Macintosh computers. The sound input port also supports a standard stereo (miniplug-to-RCA) cable adapter for connecting stereo equipment to your computer.
The sound input port does not support the omnidirectional microphone (the round microphone shipped with some earlier models of Macintosh) or the attenuated RCA adapter provided with some Macintosh models.

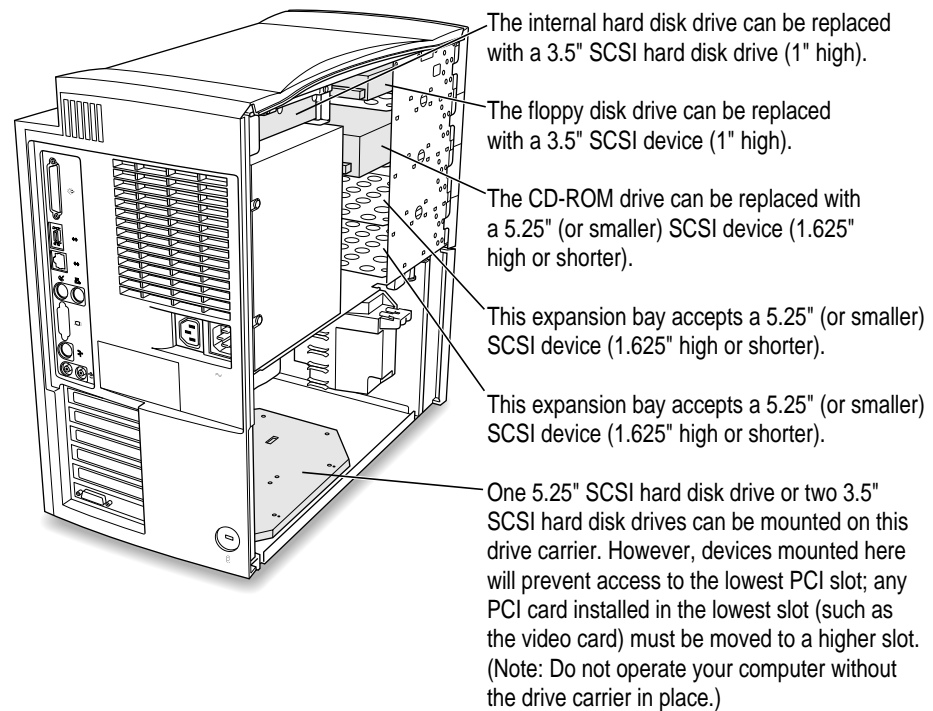
SCSI interfaces

Your computer has two SCSI interfaces:

- an external standard SCSI chain
- an internal “Fast” SCSI chain

The external SCSI chain supports up to seven external SCSI devices. For information on connecting external SCSI devices to your Macintosh, see your *Power Macintosh User’s Manual*.

The internal SCSI chain supports the internal hard disk and CD-ROM drive. An Apple-authorized dealer or service provider can connect up to seven SCSI devices to the internal SCSI chain. The illustration below shows all of the internal expansion options.



The internal SCSI chain supports “Fast” SCSI, which is capable of transferring data at up to 10 MB per second (twice the rate of the external standard SCSI chain). If you obtain a SCSI device that supports “Fast” SCSI, you should receive faster performance if it is connected to the internal SCSI chain.

All devices on the same SCSI chain must have unique ID numbers, but devices on different SCSI chains may use the same SCSI ID number. (For example, you could have a CD-ROM drive with ID number 3 connected to the internal SCSI chain and a tape drive with ID number 3 connected to the external SCSI chain.)

The drives that were installed in your computer at the factory, as well as the computer itself, have already reserved certain SCSI ID numbers. Other ID numbers are available for assignment to SCSI devices that are added after you buy your computer, as described in the following table.

SCSI chain	SCSI ID number	Device
Internal	0	Factory-installed hard disk (terminated)
	1	Available
	2	Available
	3	Factory-installed CD-ROM drive
	4	Available
	5	Available
	6	Available
	7	Power Macintosh computer (terminated)
External	0	Available
	1	Available
	2	Available
	3	Available
	4	Available
	5	Available
	6	Available
	7	Power Macintosh computer (terminated)

IMPORTANT The factory-installed internal hard disk and the Power Macintosh computer are both terminated. Other SCSI devices attached to the internal SCSI interface must not be terminated. If you attach a terminated device to the internal SCSI interface, damage to the computer's main logic board can occur.

IMPORTANT Some older SCSI devices may require updated drivers. (A “driver” is special software that is installed in your System Folder.) Contact the device manufacturer for information on obtaining driver software.

Audio system

- Custom sound circuitry, including a stereo generator (digital-to-analog converter, or DAC)—capable of driving stereo miniplug headphones or audio equipment—and stereo sampling hardware (analog-to-digital converter, or ADC) for recording stereo sound
- 16-bit stereo input and output
- Sample rates of 44.1 and 22.05 kilohertz (kHz)

Typical specifications

- Sound input connector line level: 2.8 volts peak-to-peak (V_{pp}) nominal, into 6.5-kilohm (k Ω) impedance
- Sound output connector line level: 3.0 V_{pp} nominal, into 1-k Ω impedance
- Sound input signal-to-noise ratio (SNR): greater than (>) 74 decibels (dB) non-weighted
- Sound output SNR: > 82 dB non-weighted
- Frequency response: 20 hertz (Hz) to 17 kHz (+/- 0.8 dB) at 44.100-kHz sample rate; 20 Hz to 19 kHz (+/- 2.0 dB) at 44.100-kHz sample rate
- Total harmonic distortion plus noise (THD + N): Less than (<) 0.05 %; measured 20 Hz to 20 kHz with a 2.5-V_{pp} sine wave input

AC line input

- Line voltage: 100–240 volts (V) alternating current (AC), RMS single phase, automatically configured
- Frequency: 50–60 Hz
- Power: 560 watts (W) maximum continuous; 700 W peak input

AC line output

- Output receptacle: 100–120 V, 3 amperes (A) AC, 220–240 V, 1.5 A AC RMS (determined by actual input voltage); 3 A maximum at 100 V

DC power

- Continuous output: 390 W
- Peak output (for 12 seconds at startup): 485 W

Output voltage	Total*
+5 V	41 A [†]
+3.3 V	42 A [†]
+12 V	3 A
–12 V	0.85 A
+5 V (trickle)	0.1 A
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+5 V (drives)	7 A
+12 V (drives)	8.3 A

*Total power output cannot exceed 390 W.

[†]Not more than 45 A total combined current.



Power requirements for devices you can connect

Apple Desktop Bus (ADB)

- The mouse draws up to 10 milliamperes (mA).
- The keyboard draws 25–80 mA (varies with keyboard model used).
- The maximum current available for all ADB devices: 500 mA.

Note: The ADB port can support up to three daisy-chained ADB devices.

Audio and telecommunications devices

The following table shows power allowances for external devices connected to input ports.

Device	Voltage	Current	Power
Microphone	+5 V	20 mA	100 mW
A device connected to the printer port or modem port*	+5 V	500 mA	2.5 W

*Such as the GeoPort Telecom Adapter

Expansion cards and other internal devices

If you add an expansion card, a 5.25-inch storage device, or a 3.5-inch storage device to your computer, make sure the component's power requirements don't exceed the maximum power allowances allocated to it by the computer.

The maximum power allowances for expansion cards in your computer can accommodate six 15-watt or four 25-watt cards. Detailed guidelines are presented in the following table.

Device	Voltage	Current	Power
Expansion card (15 watts)*	+5 V	3 A	15 W
	+12 V	0.500 A	6 W
	-12 V	0.100 A	1.2 W
	+3.3 V	2 A	6.6 W
Expansion card (25 watts)†	+5 V	5 A	25 W
	+12 V	0.500 A	6 W
	-12 V	0.100 A	1.2 W
	+3.3 V	2 A	6.6 W
Storage device (such as a hard disk)	+5 V	9 A	45 W
	+12 V	3 A	36 W
	+12 V	7.5 A peak‡	—

*15-watt expansion cards should not consume more than 15 watts of total power.

†25-watt expansion cards should not consume more than 25 watts of total power.

‡Peak power is for startup only and must not occur in normal operation.



Size and weight

Weight	Height	Width	Depth
Main unit			
15.9 kg*	439 mm	246 mm	440 mm
35 lb.*	17.3 in.	9.7 in.	17.3 in.
Mouse			
0.11 kg	33 mm	61 mm	107 mm
4 oz.	1.3 in.	2.4 in.	4.2 in.

*Weight varies depending on type of hard disk and may be greater if optional devices are installed.

Environment

Operating temperature

- 10° C to 35° C (50° F to 95° F)

Storage temperature

- -40° C to 47° C (-40° F to 116.6° F)

Relative humidity

- 5% to 95% (noncondensing)

Altitude

- 0 to 3048 m (0 to 10,000 ft.)

CD-ROM drive

Disc speed

- 12x (twelve-times speed)

Disc diameters supported

- 120 mm (4.7 inches)
- 80 mm (3.2 inches)

Data capacity

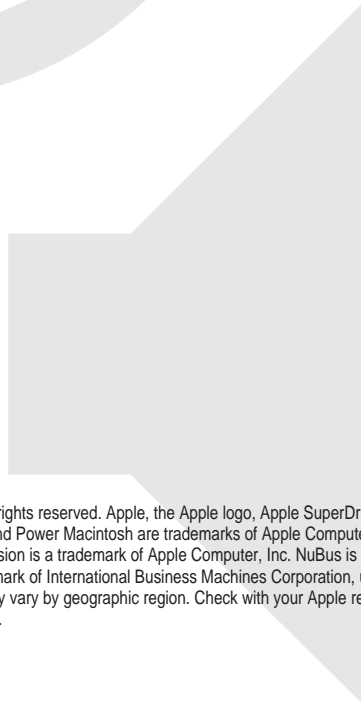
- 656 MB, Mode 1
- 748 MB, Mode 2

Modes supported

- Audio CD
- CD-ROM: Modes 1 and 2
- CD-ROM XA: Mode 2, Forms 1 and 2
- CD-I: Mode 2, Forms 1 and 2
- Photo CD: Single-session and multisession
- Video CD

Laser

- Type: Semiconductor GaAlAs laser
- Wavelength: 795 ± 25 nanometers
- Output power: 0.2 to 0.6 milliwatts
- Beam divergence: 55°



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The background features several large, light gray, abstract geometric shapes. On the left, a large shape resembles a stylized letter 'E' or a house-like structure. To its right, there are various curved and angular lines and shapes, including a horizontal bar with rounded ends, a wavy line, and several thick, rounded, L-shaped or hook-like forms. The overall aesthetic is clean and modern, typical of Apple's branding from the late 1980s or early 1990s.

Technical Information

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Specifications for Power Macintosh 9600 series computers