

Technical Information

Main unit

Power Macintosh 7300/180 processor

A PowerPC™ 604e processor with the following features:

- 180 megahertz (MHz) processor clock
- built-in floating point unit (FPU) and 64 kilobyte (K) level 1 cache
- 45 MHz system bus
- mounted on a removable card so you can upgrade as faster processors become available

Memory

- 32 megabytes (MB) of dynamic random-access memory (DRAM), supplied in removable Dual Inline Memory Modules (DIMMs), expandable to a maximum of 512 MB
- 2 MB of video RAM (VRAM), supplied in removable DIMMs, expandable to a maximum of 4 MB
- 4 MB of read-only memory (ROM)
- 8 kilobytes (K) of nonvolatile parameter memory
- one 256K DIMM of static RAM used as a level 2 cache

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

Graphics modes

The table that follows shows the image sizes for monitors that can be connected to the monitor port, along with the number of colors or grays supported with 2 MB of VRAM and with the optional expansion to 4 MB of VRAM. The table also lists the screen refresh rates in hertz (Hz) and kilohertz (kHz).

Peripheral component interconnect (PCI) expansion cards that can support other monitors and special video requirements are available from other manufacturers. See your Apple-authorized dealer for information.

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 with Power Macintosh computers. If you’re not sure what type of monitor you have, check with your dealer.

Colors or grays supported

Monitor	VIS*	Resolution	Maximum colors [†]		Screen refresh rate	
			2 MB VRAM	4 MB VRAM	Vertical (Hz)	Horizontal (kHz)
12" RGB	N/A	512 x 384	Millions	Millions	60	24.48
13" RGB Hi-Res	N/A	640 x 480	Millions	Millions	67	34.971
14" RGB Hi-Res	11.5"	640 x 480	Millions	Millions	67	34.971
VGA	‡	640 x 480	Millions	Millions	60	31.505
		800 x 600	Millions	Millions	60	39.921
		800 x 600	Millions	Millions	72	48.1
		800 x 600	Millions	Millions	75	47.933
		1024 x 768	Thousands	Millions	60	48.294
		1024 x 768	Thousands	Millions	72	58.286
Full-page Monochrome	N/A	640 x 870	256	256	75	68.773

*Viewable image size

[†]256=image depth of 8 bits, thousands=image depth of 16 bits, millions=image depth of 32 bits

[‡]Refer to the manual that came with your monitor to determine VIS.

N/A=not available

continued ►



Monitor	VIS*	Resolution	Maximum colors [†]		Screen refresh rate	
			2 MB VRAM	4 MB VRAM	Vertical (Hz)	Horizontal (kHz)
14" AudioVision	11.5"	640 x 480	Millions	Millions	67	35
16" Color	14.8"	832 x 624	Millions	Millions	75	49.670
Two-page Monochrome	N/A	1152 x 870	256	256	75	68.476
Two-page RGB	11.5"	1152 x 870	Thousands	Millions	75	68.476
Multiple Scan 14	12.4"	640 x 480	Millions	Millions	67	34.971
Multiple Scan 15	13.3"	640 x 480	Millions	Millions	67	34.971
		832 x 624	Millions	Millions	75	49.670
Multiple Scan 15AV	13.75"	640 x 480	Millions	Millions	66.67	35.000
		832 x 624	Millions	Millions	75	49.700
		1024 x 768	Thousands	Millions	75	60.240
Multiple Scan 17	16.1"	640 x 480	Millions	Millions	67	34.971
		832 x 624	Millions	Millions	75	49.670
		1024 x 768	Thousands	Millions	75	60.060
Multiple Scan 1705	15.8"	640 x 480	Millions	Millions	67	34.971
		832 x 624	Millions	Millions	75	49.670
		1024 x 768	Thousands	Millions	75	60.060
AppleVision 1710	16.1"	640 x 480	Millions	Millions	67	34.971
		832 x 624	Millions	Millions	75	49.670
		1024 x 768	Thousands	Millions	75	60.060
		1152 x 870	Thousands	Millions	75	68.476
		1280 x 1024	256	Thousands	75	79.964
AppleVision 1710AV	16.1"	640 x 480	Millions	Millions	67	34.971
		832 x 624	Millions	Millions	75	49.670
		1024 x 768	Thousands	Millions	75	60.060
		1152 x 870	Thousands	Millions	75	68.476
		1280 x 1024	256	Thousands	75	79.964
Multiple Scan 20	19.1"	640 x 480	Millions	Millions	67	34.971
		832 x 624	Millions	Millions	75	49.670
		1024 x 768	Thousands	Millions	75	60.060
		1152 x 870	Thousands	Millions	75	68.476
		1280 x 1024	256	Thousands	75	79.964

*Viewable image size

[†]256=image depth of 8 bits, thousands=image depth of 16 bits, millions=image depth of 32 bits

[‡]Refer to the manual that came with your monitor to determine VIS.

N/A=not available

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.

Interfaces

- One ADB port supporting up to three ADB input devices (such as a keyboard, mouse, or trackball) daisy-chained through a low-speed, synchronous serial bus
- Monitor port supporting color and grayscale monitors of various sizes and resolutions (See “Graphics Modes” earlier in this booklet.)
- Three internal expansion card slots supporting PCI expansion cards. Install only expansion cards that come with Macintosh drivers and are compliant with the PCI 2.0 standard. 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 kilobit (Kbit) per second maximum (up to 2.048 megabit [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 internal “Fast” SCSI chain
- an external standard SCSI chain

The internal SCSI chain supports the internal hard disk and CD-ROM drive. An Apple-authorized dealer or service provider can connect one additional 3.5-inch SCSI device to the internal SCSI interface. The SCSI device must be no more than 1.625 inches (41.3 mm) high.

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.

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*.

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)

*Although five SCSI ID numbers are available for assignment, only one other SCSI device can be connected to the internal SCSI chain.

IMPORTANT The factory-installed internal hard disk and the Power Macintosh computer are both terminated. If another SCSI device is attached to the internal SCSI interface, it 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 to work with your computer. (A "driver" is special software that is installed in your System Folder.) Contact the device manufacturer for information on obtaining driver software.



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

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 30-kilohm (k Ω) impedance (minimum)
- *Sound output connector line level:* 2.7 V_{pp} nominal, into 32-k Ω impedance
- *Sound input signal-to-noise ratio (SNR):* greater than (>) 83 decibels (dB) A-weighted with no audible discrete tones
- *Sound output SNR:* >84 dB A-weighted with no audible discrete tones
- *Bandwidth:* 10 Hz to 18 kHz (+0.1 dB, -3.0 dB) at 44.1-kHz sample rate

AC line input

- *Line voltage:* 100–130 volts (V) AC and 200–270 V AC, RMS single phase, manually configured
- *Frequency:* 50–60 Hz
- *Power:* 298 watts (W) maximum continuous; 453 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:* 150 W
- *Peak output (for 12 seconds at startup):* 189 W

Output voltage	Maximum current*
+5 V	20 A [†]
+5 V (trickle)	0.1 A
+3.3 V	10 A [†]
+12 V	5 A
-12 V	0.75 A

*Total power output cannot exceed 150 W.

[†] Not more than 25 A total combined current.

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°

Environment

- *Operating temperature:* 10°C to 40°C (50°F to 104°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.)

Size and weight

Weight	Height	Width	Depth
Main unit			
10 kg*	156 mm	365 mm	430 mm
22 lb.*	6.15 in.	14.37 in.	16.93 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.

Maximum supportable monitor weight: 70 lbs. (31.75 kg)

Built-in 12-inch PC Compatibility Card

Description

- 12-inch PC-compatible PCI card

System

- Pentium or Pentium-compatible microprocessor
- 256K L2 cache
- Plug-n-Play BIOS

Power

- +5V \pm 5%, @ 3A typical
- +3.3V \pm 5%, @ 0.5A typical
- +12V \pm 5%, @ 0.3A typical
- 25 watts maximum

Memory

- 16 MB non-removable random-access memory (RAM)
- one empty socket available for an additional 168-pin DIMM, 70 ns or less, up to 64 MB; use 64-bit wide DIMM

Networking

- supports ODI and NDIS v. 2.0 network drivers
- supports IPX/SPX, NetBEUI, Novell LAN Workplace, AppleShare, TCP/IP, Trumpet WinSock, and OS/2 LAN Server client protocols in the PC environment

Sound

16-bit Sound Blaster sound system supports

- PC sound played through Macintosh speaker or headphones
- CD-ROM sound recording capability
- enhanced FM-synthesized sound-out capabilities
- 8- and 16-bit digital sound

Sound Blaster microphone and line input are not supported.

Keyboard

- Macintosh ADB keyboard and mouse emulate PC AT-compatible keyboard and PS/2-compatible mouse

Joystick

- standard PC-style joysticks supported through DB-15 connector included on the card (PC applications only)

MIDI

- MIDI devices supported through a Sound Blaster-compatible joystick-to-MIDI adapter cable (available separately)

Serial ports

- two PC-compatible serial interfaces that can be routed, under software control, either to a text file or through the two Macintosh RS-422 serial ports (RS-422 ports do not support all RS-232 signals)

Parallel port

- Macintosh printer port can emulate PC XT/AT-compatible parallel port (LPT1)

Video modes

- VGA modes 0-7 and D-13h
- SVGA modes for 640 x 480, 800 x 600, 1024 x 768, and 1280 x 1024 (79h, 6Ah, 70h)
- VESA 2.0 support in BIOS
- supports 13-, 14-, 16-, and 20-inch Macintosh-compatible monitors; Macintosh Portrait Display monitors; Macintosh Two-Page Display monitors; and 15-, 17-, and 20-inch Macintosh multiple scan monitors
- supports all VGA monitors
- EGA, CGA, MDA also supported

Video DRAM expansion

- one socket to accommodate 5 V, 256K x 16, 60 ns, standard fast-page mode SOJ package DRAM device (40 pin), such as Micron #MT4C16257DJ-6, NEC #UPD424260LE60R, Samsung #KM416C256BJ-6, or Hyundai #HY514260BJ-60

Video Sync signals

- separate horizontal, vertical, and composite sync at TTL levels

Power requirements for devices you can connect

If you want to add an expansion card 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 combined power allowance for both PCI expansion card slots is 50 watts (W). For instance, your computer can accommodate three 15-watt cards or two 25-watt cards. The PC Compatibility Card that came installed in your computer consumes 25 watts of power.

The following table displays examples of maximum power allowances for 15-W and 25-W expansion cards and storage devices. The combined power for +5-V and +3.3-V cards must not exceed the specified wattage of the PCI expansion slot (that is, 15 W or 25 W). The power consumed by the +5-V and +3.3-V cards can be consumed separately or in combination.

Examples of maximum power allowances for cards and storage devices

15-watt PCI cards*	Voltage	Current	Power
Card Example A	+5.0 V	3.0 A	15.0 W
Card Example B	+5.0 V +3.3 V	≈1.0 A 3.0 A (maximum)	≈5.0 W ≈10.0 W

25-watt PCI cards†	Voltage	Current	Power
Card Example A	+5.0 V	5.0 A	25.0 W
Card Example B	+5.0 V +3.3 V	≈2.0 A 4.5 A (maximum)	≈10.0 W ≈15.0 W

Storage device (such as a hard disk)	Voltage	Current	Power
	+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.

Apple Desktop Bus (ADB) devices

- Mouse draws up to 10 milliamperes (mA)
- Keyboard draws 25–80 mA (varies with keyboard model used)
- Maximum current available for all ADB devices and all serial 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
GeoPort Telecom Adapter & ADB devices	+5 V	500 mA	2.5 W



© 1997 Apple Computer, Inc. All rights reserved. Apple, the Apple logo, AppleShare, Apple SuperDrive, AppleVision, GeoPort, Macintosh, PlainTalk, and Power Macintosh are trademarks of Apple Computer, Inc., registered in the U.S. and other countries. AudioVision is a trademark of Apple Computer, Inc. NuBus is a trademark of Texas Instruments. PowerPC is a trademark of International Business Machines Corporation, used under license therefrom.

034-0241-A
Printed in U.S.A.

The background features several large, light gray, abstract geometric shapes. On the left, a large shape resembles a stylized 'E' or a series of connected lines forming a large 'L' shape. To the right, there are several curved, wavy lines and shapes that suggest motion or fluidity, including a horizontal bar with rounded ends and a series of connected curves that look like a stylized 'S' or a path.

.....

*Specifications for Power Macintosh 7300 series
PC-compatible computers*