Technical Information

Specifications for Power Macintosh G3 minitower computers

Main unit

Processor

PowerPC™ G3 processor at one of the following speeds:

Processor speed	System bus speed
233 megahertz (MHz)	66 MHz
266 MHz	66 MHz
300 MHz	66 MHz

Memory

Dynamic Random-Access Memory

The computer comes with a minimum of 32 megabytes (MB) of Synchronous Dynamic Random-Access Memory (SDRAM), supplied in removable Dual Inline Memory Modules (DIMMs). The main logic board has three expansion slots that accept DIMMs that meet these specifications:

- 8, 16, 32, 64, or 128 MB
- 3.3 volt (V), unbuffered, 64-bit wide, 168-pin
- 100 MHz/10 nanosecond (ns) cycle time or faster using SDRAM

Important Power Macintosh G3 computers use SDRAM DIMMs. DIMMs from older Macintosh computers are not compatible with your computer and should not be used even though they will fit into the DRAM DIMM slots.

To increase DRAM to the maximum of 384 MB, fill all three slots with 128 MB DIMMs.

Video memory

Your computer comes with 2 MB of Synchronous Graphic RAM (SGRAM) video memory built into the logic board. The logic board contains a video memory expansion slot that accepts a Small Outline DIMM (SO-DIMM) to increase video memory up to a maximum of 6 MB. Depending on the configuration you purchased, an SO-DIMM may already be installed in the slot. The DIMM must meet these specifications:

- a 2 MB or 4 MB SGRAM SO-DIMM
- 32-bit wide, 144-pin
- 83 MHz/12 ns cycle time or faster

Important Use only an SGRAM SO-DIMM. Never use a 256K or 512K video memory DIMM from an older Macintosh computer.

Other memory

- 4 MB of read-only memory (ROM)
- 8 kilobytes (KB) of nonvolatile parameter memory
- 512K to 1 MB of static RAM used as a level 2 cache integrated into the processor module

For more information and instructions on expanding your DRAM or video memory, see Chapter 3, "Installing PCI Expansion Cards and Additional Memory," in *Setting Up Your Power Macintosh* manual.

Video modes

The table that follows shows the modes available for monitors that can be connected to the monitor port, along with the number of colors or grays supported with 2 MB of video memory (SGRAM) and with the optional expansion to 4 MB or 6 MB of SGRAM. 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.

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

Display modes and color depths

| Mode (kHz) | Screen refresh rate | | Pixel Clock | Maximum color depth[1] (bits per pixel) | | |
	Vertical (MHz)	Horizontal (Hz)		2 MB	4 MB	6 MB
512 x 384	70.130	31.488	21.160	32	32	32
640 x 480	59.940	31.469	25.175	32	32	32
640 x 480	66.667	35.000	30.24	32	32	32
640 x 480	72.809	37.861	31.500	32	32	32
640 x 480	75.000	37.500	31.500	32	32	32
640 x 480	85.008	43.269	36.000	32	32	32

1 Image bit depths: 32 bits=millions of colors, 16 bits=thousands of colors, 8 bits=256 colors

(continued)

Mode (kHz)	Screen refresh rate		Pixel Clock	Maximum color depth[1] (bits per pixel)		
	Vertical (MHz)	Horizontal (Hz)		2 MB	4 MB	6 MB
640 x 870	75.000	68.850	57.283	16	32	32
800 x 600	56.250	35.156	36.000	32	32	32
800 x 600	60.317	37.879	40.000	32	32	32
800 x 600	72.188	48.077	50.000	32	32	32
800 x 600	75.000	46.875	49.500	32	32	32
800 x 600	85.061	53.674	56.250	32	32	32
832 x 624	74.550	49.725	57.283	32	32	32
1024 x 768	60.004	48.363	65.000	16	32	32
1024 x 768	70.069	56.476	75.000	16	32	32
1024 x 768	75.029	60.023	78.750	16	32	32
1024 x 768	74.927	60.241	80.000	16	32	32
1024 x 768	84.997	68.677	94.500	16	32	32
1152 x 870	75.062	68.681	100.00	16	32	32
1280 x 960	75.000	75.000	126.000	8	16	16
1280 x 1024	60.020	63.981	108.000	8	16	32
1280 x 1024	75.025	79.976	135.000	8	16	16
1280 x 1024	85.024	91.146	157.50	8	16	16
1600 x 1200	60.000	75.000	162.000	8	16	16
1600 x 1200	65.000	81.250	175.500	8	16	16
1600 x 1200	70.000	87.500	189.000	8	16	16
1600 x 1200	75.000	93.750	202.500	8	16	16

1 Image bit depths: 32 bits=millions of colors, 16 bits=thousands of colors, 8 bits=256 colors

Internal disk drives

The following drives come factory-installed in your computer:

- Apple SuperDrive 1.4 MB high-density floppy disk drive
- Apple ATA hard disk drive
- 24x-speed ATAPI CD-ROM drive
- Optional Zip drive connected to SCSI chain (If the drive is installed, it has SCSI ID number 5.)

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 "Video Modes" earlier in this booklet.)

- Two internal ATA connectors: one supports the built-in hard disk drive and one supports the built-in CD-ROM drive

- Three internal expansion card slots supporting PCI expansion cards. Install only expansion cards that come with Macintosh drivers and are compliant with the PCI 2.1 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).

- One built-in 10Base-T Ethernet RJ-45 connector for direct connection to 10Base-T networks

- One 3.5-mm sound output port for headphones or amplified speakers

- 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.

Optional audio/video interfaces

Some Power Macintosh G3 models include the following audio/video interfaces:

- Two pairs of RCA-type audio ports for stereo input and output

- Two composite video ports for video input and output

- Two S-video ports for video input and output

All the video ports support the NTSC and PAL video standards. The video input ports also support the SECAM video standard.

SCSI interface

Your computer has one standard SCSI chain, which is capable of transferring data at up to 5 MB per second. The SCSI chain can support up to seven internal and external SCSI devices.

The computer has two internal expansion bays. Each one accepts a 3.5" or 5.25" storage device that is up to 1.625" (41.3 mm) high. Some models come with a Zip drive already installed in one of these bays. For information on installing internal SCSI devices in these expansion bays as well as information on connecting external SCSI devices, see *Setting Up Your Power Macintosh* manual.

Clock/calendar

■ CMOS custom circuitry with long-life battery

Warning Do not attempt to replace the clock battery yourself. If the clock begins to lose accuracy, have an Apple-authorized service provider replace the battery. The service provider will dispose of the battery according to the local environmental guidelines.

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)

■ Preamplifier enabled for input gains greater than 22.5 decibels (dB)

Typical audio specifications

Sound input using the sound input port (ψ)

■ *Input impedance (preamplifier off):* more than 80 kilohm (kΩ)

■ *Maximum input voltage (preamplifier off):* 1 Volt (V_{rms}) = 2.8 Volts peak-to-peak (V_{pp}), nominal

■ *Input impedance (preamplifier on):* more than 5 kΩ

■ *Maximum input voltage (preamplifier on):* 62 millivolts (mV_{rms}) = 175 mV_{pp}, nominal

Sound output using the sound output port ($\blacktriangleleft$))

■ *Output impedance:* 33 Ω, nominal

■ *Maximum output voltage:* 0.94 V_{rms} = 2.65 V_{pp}

Noise, distortion, and bandwidth

- *Sound input signal-to-noise ratio (SNR):* 85 dB unweighted (add $+8$ dB to estimate A weighting)
- *Total harmonic distortion:* 0.05%
- *Bandwidth:* 20 Hz–20 kHz at 44.1-kHz sample rate (Other sample rates scale the upper cutoff frequency.)

Sound input using the optional RCA-type audio input ports (◀))))

- *Input impedance (preamplifier off):* more than 80 kΩ
- *Maximum input voltage (preamplifier off):* 1 V_{rms} = 2.8 Volts peak-to-peak (V_{pp}), nominal
- *Input impedance (preamplifier on):* more than 5 kΩ
- *Maximum input voltage (preamplifier on):* 62 millivolts (mV_{rms}) = 175 mV_{pp}, nominal

Sound output using the optional RCA-type audio output ports (◀))))

- *Output impedance:* 400 Ω
- *Maximum output voltage:* 1 V_{rms} = 2.8 V_{pp}, nominal

Noise, distortion, and bandwidth

- *Audio input signal-to-noise ratio (SNR):* 85 decibels (dB) unweighted (add $+8$ dB to estimate A weighting)
- *Total harmonic distortion:* 0.05%
- *Bandwidth:* 20 Hz–20 kHz at 44.1-kHz sample rate (Other sample rates scale the upper cutoff frequency.)

Video system

Video input

- *Type:* composite or S-video
- *Standards supported:* NTSC, PAL, and SECAM
- *Resolution supported:* 320 x 240, which scales to any size up to the size of the monitor
- *Polarity:* sync negative
- *Voltage level:* 0.7 V_{pp} minimum, 1.0 V_{pp} typical, 1.4 V_{pp} maximum
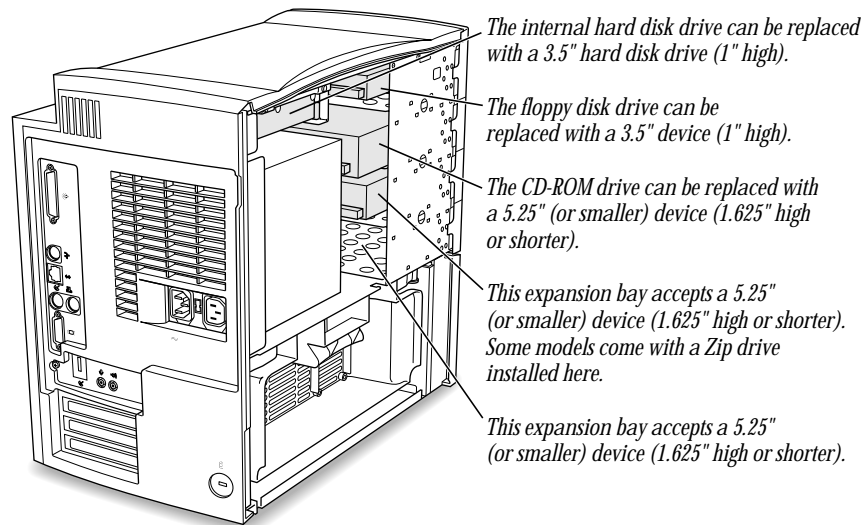- *Impedance:* 75 ohms (Ω) internally terminated

Video output

- *Type:* composite and S-video
- *Standards supported:* NTSC and PAL
- *Resolutions supported:* 512 x 384, 640 x 480, 800 x 600, and 832 x 624

- *Polarity:* sync negative (no sync on S-video chroma signal)
- *Voltage level:* 1.0 V$_{pp}$ $\pm$ 5% into a 75 Ω resistive load (S-video chroma 0.7 V$_{pp}$)
- *Impedance:* 75 Ω source

Drive bay specifications

The following illustration shows all of the internal storage expansion options.

The internal hard disk drive can be replaced with a 3.5" hard disk drive (1" high).

The floppy disk drive can be replaced with a 3.5" device (1" high).

The CD-ROM drive can be replaced with a 5.25" (or smaller) device (1.625" high or shorter).

This expansion bay accepts a 5.25" (or smaller) device (1.625" high or shorter). Some models come with a Zip drive installed here.

This expansion bay accepts a 5.25" (or smaller) device (1.625" high or shorter).

An Apple-authorized dealer or service provider can replace existing internal storage devices with other ones, along with any necessary data cables or brackets to secure each device inside the computer.

AC line input

- *Line voltage:* 100–120 volts alternating current (V AC) and 200–240 V AC, RMS, single phase, manually set by voltage selector switch
- *Frequency:* 50–60 Hz
- *Power:* 960 volt-amperes (VA) maximum continuous; 1070 VA peak input

AC line output

- *Output receptacle:* 100–120 V AC; 3 amperes (A) maximum, or 200–240 V AC; 1.5 A maximum (determined by actual input voltage)

DC power

■ *Continuous output:* 161 watts (W)

■ *Peak output (for 12 seconds at startup):* 210 W

Output voltage	Maximum current[1]
+5 V	18.3 A[2]
+5 V (trickle)	0.020 A
+3.3 V	12.5 A[2]
+12 V	6.2 A
−12 V	0.4 A

1 Total continuous power output cannot exceed 161 W.
2 Not more than 104 W total combined power.

Keyboard

■ Supports all Apple Desktop Bus (ADB) keyboards

Mouse

■ Supports all models of the ADB mouse

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 is 500 mA.

The ADB port can support up to three 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

Expansion cards and other internal devices

If you add an expansion card or a 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 three 15-watt cards, two 25-watt cards, or one 15-watt card and one-25 watt card. Some detailed guidelines are presented in the following table.

Device	Voltage	Current	Power
Expansion card (15 watts)[1]	+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)[2]	+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 devices (such as a hard disk)	+5 V	3 A	15 W
	+12 V	2.3 A	27.6 W
	+12 V	6.2 A peak[3]	—

1 15-watt expansion cards should not consume more than 15 watts of total power.

2 25-watt expansion cards should not consume more than 25 watts of total power.

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

CD-ROM drive

Disc speed

■ 24x (twenty-four-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 AlGaAs 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			
15 kg[1]	385 mm	245 mm	435 mm
33.1 lb.[1]	15.15 in.	9.64 in.	17.75 in.

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