



# Technical Information

Specifications for Power Macintosh G3 minitower computers

## Main Unit

### Processor

To find out the exact speed of your PowerPC™ G3 processor, use Apple System Profiler, available in the Apple (🍏) menu.

### 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, 128, or 256 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.

The maximum amount of DRAM you can install in your computer using standard DIMMs is 768 MB. To increase DRAM to the maximum of 768 MB, fill all three slots with 256 MB DIMMs. Any 256 MB DIMMs used must use 128-megabit (Mbit) memory technology for compatibility with your Power Macintosh G3 computer. See your Apple-authorized dealer for more information.

#### 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
- 64-bit wide, 144-pin
- 100 MHz/10 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 (K) 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 Cards, Memory, and Internal Storage Devices,” in the *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	Screen refresh rate		Pixel clock (MHz)	Maximum color depth <sup>1</sup> (bits per pixel)		
	Vertical (Hz)	Horizontal (kHz)		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

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

(continued)

Mode	Screen refresh rate		Pixel clock (MHz)	Maximum color depth <sup>1</sup> (bits per pixel)		
	Vertical (Hz)	Horizontal (kHz)		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	32
1280 x 1024	60.020	63.981	108.000	8	16	32
1280 x 1024	75.025	79.976	135.000	8	16	32
1280 x 1024	85.024	91.146	157.50	8	16	32
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
1920 x 1080	59.994	70.313	180.000	8	16	16
1920 x 1080	71.992	84.375	216.000	8	16	16

<sup>1</sup> 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 IDE or Ultra Wide SCSI hard disk drive
- 24x-speed ATAPI CD-ROM drive or 2x-speed ATAPI DVD-ROM drive
- Optional Zip drive

## 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 (or DVD-ROM) drive and optional Zip 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 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. (An Apple-authorized service provider can install an internal SCSI cable allowing you to connect internal SCSI devices.)
- 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.

### 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 (🎧)

- *Input impedance (preamplifier off):* more than 80 kilohm ( $k\Omega$ )
- *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  $k\Omega$
- *Maximum input voltage (preamplifier on):* 62 millivolts ( $mV_{rms}$ ) = 175  $mV_{pp}$ , nominal

Sound output using the sound output port (🔊)

- *Output impedance:* 33 ohm ( $\Omega$ ), 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 k $\Omega$
- *Maximum input voltage (preamplifier off)*: 1 V<sub>rms</sub> = 2.8 Volts peak-to-peak (V<sub>pp</sub>), nominal
- *Input impedance (preamplifier on)*: more than 5 k $\Omega$
- *Maximum input voltage (preamplifier on)*: 62 millivolts (mV<sub>rms</sub>) = 175 mV<sub>pp</sub>, nominal

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

- *Output impedance*: 400  $\Omega$
- *Maximum output voltage*: 1 V<sub>rms</sub> = 2.8 V<sub>pp</sub>, 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<sub>pp</sub> minimum, 1.0 V<sub>pp</sub> typical, 1.4 V<sub>pp</sub> maximum
- *Impedance*: 75 ohms ( $\Omega$ ) internally terminated

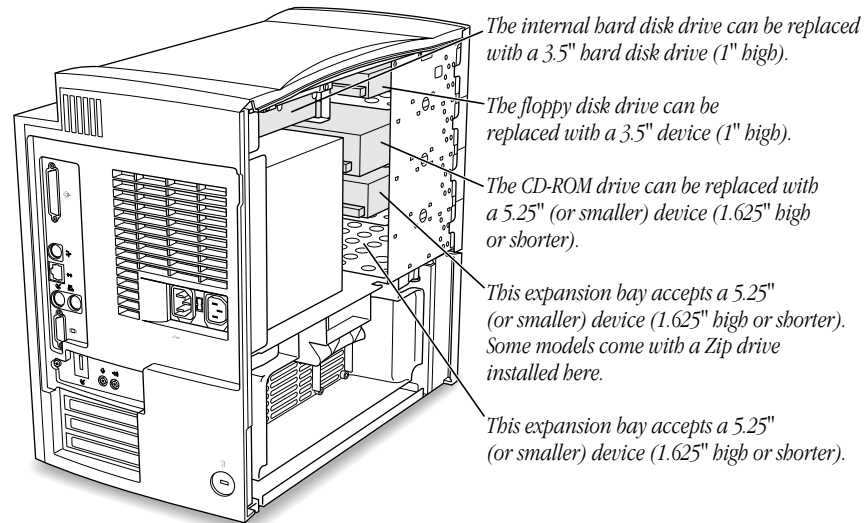
### **Video Output**

- *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<sub>pp</sub> ± 5% into a 75 Ω resistive load (S-video chroma 0.7 V<sub>pp</sub>)
- *Impedance:* 75 Ω source

### Drive Bay Specifications

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



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:* 145 watts (W)
- *Peak output (for 12 seconds at startup):* 167 W

Output voltage	Maximum current <sup>1</sup>
+5 V	18.0 A <sup>2</sup>
+5 V (trickle)	0.10 A
+3.3 V	10.0 A <sup>2</sup>
+12 V	4.2 A
-12 V	0.4 A

<sup>1</sup> Total continuous power output cannot exceed 145 W.

<sup>2</sup> Not more than 90 W total +3.3V/+5V 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. The maximum power allowance for each individual internal storage device is 10 watts.

### **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

<b>Weight</b>	<b>Height</b>	<b>Width</b>	<b>Depth</b>
<b>Main unit</b>			
15 kg <sup>1</sup>	385 mm	245 mm	435 mm
33.1 lb. <sup>1</sup>	15.15 in.	9.64 in.	17.75 in.

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