



Support News 

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“Get Off the Highway  
and Into the Alley™”

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# Inside Information...

## About the Information Alley

The Information Alley™ is a publication of Apple Computer, Inc., Support Information Services. It is available to all Apple customers and computer users through a variety of on-line services and direct email capability. The goal of the Information Alley is to help Apple computer users get full use of their Apple computers, peripherals, and software.

Articles chosen for the Information Alley come from many sources, both from inside Apple Computer and from our customers and users. Sources include the Technical Information Library, Apple Assistance Center, New Technology Group, World Wide Product Technical Support, Apple Users Groups, and other technical groups and organizations.

## Submissions and Letters to the Information Alley

We welcome articles that help Apple computer users become more knowledgeable about the functionality of their systems, explain or illustrate complex features or functions, or that describe technical tips or techniques. Send submissions to:

Information Alley  
Apple Computer  
1200 East Anderson Lane  
MS 212-STI  
Austin, TX 78752

Fax: (512) 908-8018  
email: [alley@apple.com](mailto:alley@apple.com)

We also welcome letters to the editor and suggestions for future articles. Please send all letters to the preceding address.

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Janet Christian, Editor  
Information Alley  
Apple Computer  
1200 East Anderson Lane  
MS: 212-STI  
Austin, Texas 78752

Voice: (512) 908-8975  
Fax: (512) 908-8018  
email: [alley@apple.com](mailto:alley@apple.com)

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Janet Christian, Editor

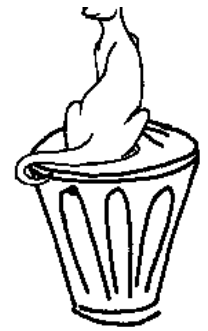
Regular Columnists:

Wayne Brissette  
Janet Christian  
Darren Conrad  
Leslie Dolan  
Stephanie Hahn  
Mark Hansen  
Fred Widmer



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## ***Back From PowerCamp!***

By Janet Christian

I spent the week of August 8th at Apple's annual week long "technical camp", which includes reviews, training, and hands-on on a variety of software and hardware. This year's camp—coined "PowerCamp"—was at George Mason University near Washington DC. I met many of our field technical support folks and got my hands on many Apple software and hardware products. I plan to share some of the wonderful information I gathered in this and future issues of the [Information Alley](#).

I would also like to thank those who gave me excellent suggestions for [Information Alley](#) articles. Watch for them in upcoming issues. And remember, I'm always looking for article suggestions and submissions. Chances are pretty good that if there is a topic you'd like to see included, you're not the only one. And if you have an article you've done for your in-house Macintosh users that you feel might be useful to others, please send it to us so that we may publish it for you (under your byline!).

### **The Information Alley List Server on the Internet**

We have received quite a few inquiries about how to get the [Information Alley](#) directly via the Internet. We maintain a free list server that includes all issues of the [Alley](#), as well as an index of back issues and a list of all the online services where the Alley is available. You access the list server by sending a direct email to this address:

**listproc@spock.austin.apple.com**

You can include anything (or nothing) in the subject of the email. The body of the email may include any of the following commands. The body of the email should contain no other text. (Capitalization is unimportant.)

#### **subscribe infoalley <your name>**

Adds your name to the list of direct subscribers. You receive a confirmation email from the list server.

#### **index info-alley**

Initiates a response that includes a list of the files available on the list server. (Note the dash in "info-alley".)

#### **get info-alley <issue name>**

Downloads a specific file. Enter the name of the file you want exactly as listed in the index. This command does not work if you access the Internet through a service that limits attached file sizes (such as America Online or Compuserve). (Note the dash.)

#### **unsubscribe infoalley**

Removes you from the list server.

#### **help**

Returns a help document that describes list servers and defines the commands.

### **Internet Access Difficulties**

Due to some recent Internet gateway reconfigurations (which we hope is fixed by the time this issue goes to "press") I may not have received and responded to all of the recent [Information Alley](#) email. Also due to the Internet gateway changes, Issue 8 was uploaded to our Internet list server several days late. We apologize for any inconvenience you may have experienced. 🍏

# V on the Power Macintosh

By Fred Widmer

The AV video card is an Apple expansion card that plugs into the PDS (Processor Direct Slot) connector of any Power Macintosh computer. It contains a sophisticated I/O system that handles video input and output signals, mixes video with 16-bit graphics, and supports a wide variety of Apple and third-party monitors. The AV I/O system also lets you connect a television set as a monitor, using either NTSC (National Television Standards Committee – primarily used in North America and Japan) or PAL (Phase Alternating Line – primarily used outside of North America and Japan) format.



The AV card expands the Power Macintosh computer's video capabilities to include the video capture and output features of the Apple AV Technologies. These video features were introduced with the Macintosh Centris 660AV and Macintosh Quadra 840AV.

Power Macintosh models 6100/60AV, 7100/66AV, and 8100/80AV are shipped with the AV card installed. On the Power Macintosh 6100/60AV, the card uses an angle adapter card.

A 40-pin connector on the AV card implements the Macintosh Digital Audio/

Video (DAV) interface. The DAV connector taps into the AV card's unscaled YUV video input signal; through the PDS interface, it also connects to the digital audio signal input for the sound chip. NuBus cards for the Power Macintosh 7100/66AV and 8100/80AV can be designed with a flat ribbon cable that plugs into the DAV connector on the AV card, so they can access these video and audio signals directly.

Power Macintosh AV models are shipped with two adapter cables so you can connect your AV card to a standard television set, video camera, videodisc player, and videocassette recorder. The input cable connects the signal pin of an RCA socket to pin 3 (the luminance signal) of the AV card's video output connector.

The video and graphics I/O system is built around two banks of 80ns VRAM with a total capacity of 2MB. The CIVIC (Cyclone Integrated Video Interfaces Controller) chip manages this VRAM and provides timing and interrupt signals.

Applications use the VRAM in two ways:

- As a single frame buffer that uses all the VRAM capacity
- As two frame buffers, one for video and one for graphics

If you configure the VRAM as a single video frame buffer, it can all be used for graphics and the video input can be disabled. If you configure the VRAM as two frame buffers, it can store video as well as graphics.

## **Video Input**

Video input signals, which may be analog composite or S-video in NTSC,

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PAL, or SECAM format, enter through one of the identical connectors for video input and output. (SECAM is a French acronym for the television signal format used in France, Eastern Europe, the former Soviet Union, and many former French colonies.) An adapter cable included with Power Macintosh AV models receives composite video from external devices that have RCA connectors and feeds it into the luminance input of the TDA8708 video ADC (Analog/Digital Converter) chip. The ADC chip can also receive separate luminance and chroma signals from S-video sources. The ADC chip digitizes the video waveform and the SAA7194 chip decodes the result into YUV. The YUV digital video format, also known as YCrCb, is a video signal format with separate luminance and chrominance components.

The SAA7194 chip scales down the video image and converts its format to either 8-bit grayscale, 15-bit RGB, or 16-bit YUV, storing the result in the VRAM buffer.

The data rate for full-screen NTSC video (640 by 480 pixels at 30 frames per second) is 18.43 MB per second through the AV card. The data rate for full-screen PAL video (768 by 576 pixels at 25 frames per second) is 22.12 MB per second. This means that it is practical to record a video image up to one-quarter screen in size on an output device such as an external hard disk drive in real time, without data compression. Larger video windows can be recorded on a Power Macintosh 8100/80AV internal hard disk.

Users of the Power Macintosh 6100/60AV, 7100/66AV, or 8100/80AV can capture live color video with a standard video camera, using the composite video input cable supplied with the computer.

## **Video Output**

Video and graphic images stored in VRAM may have different color depths. The two images exit VRAM through its serial access memory port and pass to the Sebastian color palette chip. Sebastian provides independent color lookup tables for video and graphics images and mixes them into a single digital RGB data stream. The Sebastian then converts the result into analog RGB video, using internal DAC circuits.

Analog RGB data passes to the Mickey encoder chip. Mickey either sends RGB directly to the monitor connector or encodes it into NTSC or PAL video signals in composite or S-video format and sends it to other connectors located on the card.

The Power Macintosh uses the HDI-45 for on-board video. It supports a dot clock up to 57 MHz. On AV Power Macintosh computers, the AV card supports a dot clock up to 100 MHz.

The AV card has four banks of VRAM soldered in, each of which provides 512K of storage. Two of the banks can supply a graphics screen image for monitors of small size or low color depths, letting the other two banks supply live video to be mixed with the graphic image. All four banks together can support graphics alone on monitors that are large or that use more bits per pixel.

The AV card can support mixed video and graphics in full 24-bit color on small and medium-sized monitors and in 16-bit or 8-bit color on larger monitors. The color depths (in bits per pixel) that are available when the AV card drives Apple monitors are listed on the following page.

The AV card also contains two identical connectors for video input and output, with adapter cables for composite video devices that have RCA connectors, such as television equipment.

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Monitor type	Screen Size Hor. by Vert.	Color Depths	
		Graphics	Graphics/Video
12-inch RGB <sup>1</sup>	512 by 384	32	32/16
	560 by 384	32	16/16
13-inch RGB or	640 by 400	32	16/16
12-inch monochrome <sup>1</sup>	640 by 480	32	16/16
	704 by 512	32	16/16
Full-page monochrome <sup>1</sup>	640 by 870	8	8/8
Full-page RGB	640 by 870	16	8/16 <sup>1</sup>
16-inch RGB*	832 by 624	32	16/16
19-inch RGB	1024 by 768	16	8/8
Two-page monochrome	1152 by 870	8	8/8
Two-page RGB	1152 by 870	16	8/8 <sup>2</sup>
VGA <sup>1</sup>	640 by 480	32	16/16
Super VGA 56 Hz <sup>1</sup>	800 by 600	32	16/16
Super VGA 72 Hz <sup>1</sup>	800 by 600	32	16/16
Super VGA 60 Hz	1024 by 768	16	8/8 <sup>2</sup>
Super VGA 70 Hz	1024 by 768	16	8/8 <sup>2</sup>
NTSC	640 by 480	32	16/16
	512 by 384	32	16/16
Convolved NTSC	640 by 480	8	n.a.
	512 by 384	8	n.a.
PAL	768 by 576	32	16/16
	640 by 480	32	16/16
Convolved PAL	768 by 576	8	n.a.
	640 by 480	8	n.a.

<sup>1</sup> With a color depth of 16 bits in these configurations, the maximum video window size is limited. If the video window width is 512 pixels or less, the height may be as large as 512 pixels; if the video window width is more than 512 pixels, the height is limited to 340 pixels.

<sup>2</sup> The 8 bits of video are grayscale.

The preceding color depths are shown as the number of bits in which the color or grayscale value of each pixel can be encoded.

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## Troubleshooting

You may encounter these symptoms when using a Power Macintosh AV system with a monitor attached to the DB-15 RGB port of the AV video card:

- No Video or blank screen
- Wavy glittering lines with no video image
- Machine crashes and has no video on the next reboot (restart)
- Machine loses video after a restart. If the machine is shutdown and restarted, the video image returns.

This problem can affect all Power Macintosh AV configurations with any type or size monitor attached to the AV video port. It may occur because occasionally the video driver of a Power Macintosh AV can send out incorrect sync pulses to monitors that employ separate sync lines for the horizontal

and vertical sync signals. Incorrect sync pulses may disable the monitor sweep circuits and the video signal fails to function.

To avoid this problem, install at least one of these software fixes:

- PowerMac AV Update (in the extensions folder)
- PowerPC Enabler v1.01 or later (available in System Update 3.0)

These software fixes are incorporated in System 7.5. The presence of both files does not cause any problems in use of the Macintosh.

To install the enabler, you have to reestablish video. To do this, try zapping the parameter RAM (PRAM) or connect a monitor to DRAM-based video using an HDI-45 to DB15 adapter cable. The DRAM-based video port can support monitors up to 17-inch. 🍏

## Macintosh 630 – Supported Resolutions

By Brian Fant

This table clarifies which resolutions work, and which are supported, on a Macintosh 630-series (Quadra 630, LC 630, or Performa 630) computer:

Resolution Size	Refresh Rates	Max. Color Depth
512x384	60 Hz	16-bit
640x480	60 Hz	16-bit
640x480	67 Hz	16-bit
800x600	60 Hz	8-bit
800x600	72 Hz	8-bit

**Note:** The maximum supported screen resolutions that work on a Macintosh 630-series computer is 800x600 pixels.

The Macintosh 630-series appears to work correctly when set to the 832x624 resolution. The resolution switching software, which is built into the Macintosh 630, lets you switch a Multiple Scan Display to the 832x624 resolution without any problem. However, the video-in and TV tuner features of the Macintosh 630 do not work properly at this resolution. Macintosh 630-series computers do not have the bandwidth to simultaneously send video and graphics data to a 832x624 screen – some distortion of the image in the video window may appear.

As a reminder, the officially supported resolutions are listed on the data sheets and in the Developer Note for the Macintosh 630-series. These documents do not reflect the availability of the 832x624 option. 🍏

# System 7.5 Telephone Manager

By Mark Hansen

Apple's Telephone Manager has been available to developers for two years and is now built into the operating system with System 7.5. The Telephone Manager is part of the Macintosh Telephony Architecture (MTA), which provides a framework for the integration of personal computers and telephones.



The MTA framework lets developers create sophisticated telephony-based solutions that you can take advantage of with the built-in Telephone Manager support in System 7.5. Here are some included solutions:

## **Telephone-aware Applications**

Telephony-aware applications that tie software applications to telephone functions. These include applications such as contact managers that can initiate telephone calls, databases that present information automatically based on incoming calls, calendaring programs that automatically dial scheduled conference calls, accounting applications that can automate accounts receivables follow-up phone calls, and electronic-forms applications that let you call the originator of a form before approving it.

## **Screen-based Telephone Applications**

Screen-based telephony applications that provide you with an interface for a virtual telephone on the your Macintosh desktop. At a basic level, these applications provide an easier-to-use, and better integrated alternative to the keypad on a telephone – letting you place calls, answer calls, transfer and hold calls, etc., with a simple, direct-manipulation user interface. Examples include programs that log call times for professionals charging hourly rates, and phone applications for receptionists who juggle many calls simultaneously. Given how frequently most people use their telephones, these applications can quickly become essential to day-to-day productivity.

## **Programmed Telephone Applications**

Programmed telephony applications that let you script a Macintosh computer to handle incoming calls and interact with callers to create telephone-based information retrieval systems, voice mail, and personal agents.

Telephony applications can be combined with PowerTalk's catalogs technology for the storage of telephone numbers and other personal information. This provides a real-time application of PowerTalk's integration of store-and-forward collaboration to the Macintosh user experience.

By offering built-in support for telephony, System 7.5 helps you benefit from the efficiencies of computer-telephone integration. 🍏



# The Apple World Wide Web Server

By Preston Gregg

This article lists and describes the six areas of the **www.info.apple.com** World Wide Web (www) Internet site, titled The Apple Support and Information Web.



**www.info.apple.com** is the premier Internet site for Apple Information (including product and technical) and free Apple software updates. **www.info.apple.com** is the combination of multiple Apple Internet services into a single, easy-to-use, graphically-oriented information medium. The services include http, ftp, listproc, and WAIS (additional information on these services follows). The Universal Resource Locator (URL) for the site is:

**<http://www.info.apple.com/>**

## **Six Information Areas**

**www.info.apple.com** is divided into six information areas.

### **Apple Computer, Inc.**

This area is dedicated to corporate information and points to a number of documents that detail how to contact

Apple, how and where to obtain additional Apple technical information, and answers frequently asked questions about this server.

- What is Apple? – Apple about Apple
- Contacting Apple – Phone numbers for reaching Apple Computer Inc.
- Apple Press Releases – Official Apple News
- Apple Assistance Center – Information about the Apple Assistance Center
- FAQ About This Server – Frequently Asked Questions about the Apple Web Server

## **Software Online**

This area points to the **Apple.Software.Updates** library on **ftp.info.apple.com** (formerly **ftp.austin.apple.com**). This library contains all free software updates. This is the same software that is posted to eWorld, AppleLink and CompuServe.

The contents of this library can be found by one of these methods:

- Search the Tech Info Library  
Search for the article Apple Software Updates Posted on ftp Sites (7/94) or use the keyword **KINTER**. This article lists the contents of each directory in the **Apple.Software.Updates** library.
- Internet

The address for the ftp site is: **ftp.info.apple.com**. This site can be accessed with Fetch 2.1.2 or any other ftp client software. The user name is

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**anonymous** and the password is your email address (such as **joeuser@apple.com**). The **Apple.Support.Area** is the first directory. The **Apple.Software.Updates** library is contained within the support area.

A vast Apple related shareware/demo software archive is on the way.

### The Tech Info Library

You can search through a public subset of the same Technical Info Library used by Apple's support personnel.

The www browser (client software) that you use must support forms. MacWeb 1.0a2 (<http://galaxy.einet.net/EINet/MacWeb/MacWebHome.html>) and Mosaic 2.0a (<http://www.ncsa.uiuc.edu/SDG/Software/MacMosaic/MacMosaicHome.html>), both support html forms.

You now have the ability to do unlimited boolean and keyword searches on over 5000 official technical articles directly from Apple.

In addition to searching, you have easy access to these additions:

- Top 30 TIL issues – The top thirty articles accessed on this server in the last week.
- TIL Feedback – A chance to let us know what you think. Give us feedback about any problems you had and what you would like to see in the TIL in the future.

### Apple Web Pages

This area serves as the connection point for official links to all Apple Internet services and a place for you to access third party companies and user groups with an Internet presence.

This area is growing rapidly. Here is a listing of current services:

- Apple Product Support Team Home Pages

- Power Macintosh Support
- PowerBook Support
- Quadra/Centris Support
- Printer/Peripheral Support
- Performa Support
- PIE/Newton Support
- Networking and Communication Support
- K-12 Education Support
- System Software Support
- Other Apple Software
- Apple Developer Support and Information
  - Developer Support Programs
  - A comprehensive listing of developer programs and how they might fit your needs.
  - Apple Developer University
  - The latest technical instruction for Macintosh developers.
- The Information Alley Newsmagazine
- Includes all issues of the Information Alley, Apple's premier technical newsmagazine.
- Apple Fax Support Documents
- Technical Quick Fixes and Documentation – These are the same files that are available on the Apple Fax system. Call the Apple FAX line at 1-800-505-0171 for a copy of the catalog.
- Apple e-Mail Mailing Lists
- Apple List Processor – Join any of four official Apple e-mail mailing lists.

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- Additional Apple Internet Sites
  - **www.apple.com** – The Apple Library Home Page
  - **info.hed.apple.com** – The Apple Higher Ed Gopher Server at the University of Minnesota
  - **ftp.info.apple.com**
  - **ftp.apple.com**
  - **aux.support.apple.com** – An Apple UNIX related site
  - **spinaltap.micro.umn.edu** – Tech Info Library via Gopher
- Apple Related Home pages that are not Sponsored by Apple Computer, Inc.
  - Farallon Web Server
  - Global Village
  - MacWeb from EI Net
  - Macintosh Internet resources from the University of Washington
  - Arizona Macintosh Users Group
  - Newton info from the University of Houston.
  - Microlib Macintosh Archive from The University of Texas

This area will continue to grow and be updated.

### Your Feedback

Quantitative information in the form of a survey. Qualitative information in the form of a text area for customers to write specific problems or suggestions about the services. There is also an additional area for documenting and reporting bugs.

We hope to base future tools and services on feedback and customer needs.

### Smorgasbord

This is the entertaining side of the Apple web site. This server is run on a

Power Macintosh Server 6150.

Currently, the Smorgasbord contains:

- The Apple Personal Pages. This area showcases the personal home pages for Apple employees. Information and references on these pages represent the interests of the creator and are not necessarily technically oriented.
- Apple Stock Price. This is a link to the Apple stock information from an experimental site at MIT.

Future plans for this area, include:

- Server statistics
- An interactive Austin restaurant guide
- A Fun page with links to many entertaining resources on the Internet
- Who is in the Lab? An example of video capture over the Internet
- Interactive rendering over the Internet.

All Apple Internet sites and Internet support information is contained in a series of Tech Info Library documents. You can easily access these documents with the keyword: **KINTER.** 🍏

### Tips and Tidbits

On a color monitor, the Color Control Panel sets the highlight and window colors. To reset the system colors to their default settings, boot from Disk Tools, trash the System suitcase, then reinstall 7.1 (or higher). The highlight color is stored in parameter RAM. The window color is stored in the System suitcase itself.

To manually customize the colors used for labels (such as Hot, Personal, and so on), open the Labels Control Panel. Click on the label you want to change and set the desired color. 🍏

# Macintosh 630 Plug-in Modules

By Mark Hansen

Several features of the Macintosh 630 family of computers are implemented as plug-in modules available either as a configuration option at the time of purchase or as a later upgrade. The modules are designed so that they can be installed by the user.



## TV Tuner Module

The TV tuner module turns the computer into a television receiver, complete with remote control. The features of the TV tuner module are similar to those of the TV tuner in the earlier Macintosh TV computer, with two improvements: the TV picture is in its own window on the desktop, and the TV signal is carried in YUV format for improved picture clarity.

The features of the TV tuner module in the Macintosh LC 630 and Macintosh Quadra 630 computers are:

- Ability to tune 181 broadcast and cable channels (US version).
- Coaxial connector for TV antenna or cable input (F-type connector in US and Japanese versions; IEC-type connector in Europe).
- TV picture in a resizable and movable window.

- YUV format for improved clarity.
- Support for closed caption and teletext.
- Software password protection.
- Automatic and manual channel programming.
- Single remote control for TV and for playback of audio CDs.

The TV tuner module is available in versions for NTSC, PAL, and SECAM television systems. The TV picture appears in its own window. The default size of the window is 320 by 240 pixels. You can resize the TV window up to a maximum size of 640 by 480 pixels or down to a minimum size of 160 by 120 pixels. The resolution of the TV picture does not increase at the larger window sizes; instead, the image is enlarged by doubling the size of the pixels.

The TV tuner module works in conjunction with the video input module, which converts the video data into digital YUV format and stores it in the display buffer. The TV tuner comes with a remote control device similar to the one used with the Macintosh TV computer. You can switch channels either by using the remote control or by typing the channel numbers on the keyboard. You can toggle between the current and previous channel by pressing the **Tab** key on the keyboard. Each time the channel changes, the computer displays the channel name (assigned by you) on the picture in the video window.

You can customize the operation of the TV tuner by adding or removing TV channels that are unused or unwanted. The computer can program the channels

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automatically, scanning through all available channels and disabling those that do not have a valid signal. When you then scan for the next channel by using the remote control or the **Tab** key on the keyboard, the tuner skips the disabled channels.

The software that supports the TV tuner module is an application called Apple Video Player. The application includes password protection for the disabled channels. Parents might use this feature to prevent children from watching undesirable channels. The software lets you capture or freeze a single frame of video or record a segment of video as a QuickTime Movie. The TV window cannot be resized while the computer is recording a movie.

**Note:** The TV Tuner Module is not available separately; it must be purchased along with the Video Input Module.

## **Video Input Module**

The video input module accepts video from an external source and displays it in a window on the computer's display. The features of the video input module are:

- Accepts video input in NTSC, PAL, or SECAM format
- Connectors for stereo sound, composite video, and S-video (Y/C)
- Video display in a 320-by-240-pixel window
- Pixel doubling for 640-by-480-pixel maximum display
- Video overlay capability
- YUV format for digital video input
- A digital video connector for adding a video processor on an expansion card

The video input module provides AV features similar to those of the Macintosh Quadra 660AV, with one key improvement. Whereas the Macintosh

Quadra 660AV digitizes color video using a 16-bit RGB format, the video input module uses a digital YUV format. Because a standard television signal has more information in its chrominance channel than in its luminance channels, digitizing the video signal as YUV format results in a clearer picture.

The video input module can accept video input from either an external device such as a VCR or video camcorder, or from the internal TV tuner module. The external device can be connected to the video input module either through the composite video connector or the S-video connector. The default window size is 320 by 240 pixels; the user can resize the window up to 640 by 480 pixels – the full screen on a 14-inch monitor. The large image uses pixel doubling of the 320 by 240 pixel image.

Note that the video input module does not work on video monitors with screens larger than 15-inch size. It works with 800-by-600-pixel displays that have a 60 Hz refresh rate, but not with that size display at a 72 Hz refresh rate. The video input module plugs into a dedicated slot on the main logic board. The slot connector is a 60-pin microchannel connector. The module fits only its proper slot and only in the proper orientation so that the user can safely install the video input module.

The video input module has a separate connector called the DVA (Digital Video Application) connector. The DVA connector makes the digitized video data available to a card in the I/O expansion slot. Such a card can contain a hardware video compressor or other video processor.

## **Video Output Module**

The video output module is an external module that uses the 15-pin video output connector and provides a video signal for a separate television display.

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The video output can also be recorded on a VCR. A standard television monitor has overscan: to ensure that the entire screen is filled, the image is larger than the screen, causing the outer parts of the picture to be cut off by the edges of the screen. The video output module provides a video signal with a 640-by-480-pixel display inside the safe display area so that no information is lost.

The video output module supports video mirror mode: in this mode, the image on the television display is the same as that on the computer's primary video monitor. This mode of operation is appropriate, for example, for presentations, so that the audience and the presenter can see the same displays. Apple expects to provide separate video output modules for NTSC and PAL systems.

## **Communications Modules**

The main logic board in the Macintosh LC 630 and Macintosh Quadra 630 computers has a communications slot that is compatible with the communications slot first introduced in the Macintosh LC 575 computer. The slot lets the computer support a communications module without occupying the expansion slot. A communications module can be installed by either the user or the dealer. The communications slot in the Macintosh LC 630 and Macintosh Quadra 630 computers supports all communications cards developed for the Macintosh LC 575, including:

- The 10BaseT, Ethernet CS Twisted-Pair Card – M3065
- The 10Base2, Ethernet CS Thin Coax Card – M2708
- The AAUI, Ethernet CS Apple Standard Card – M3066
- The 14.4 Fax/Data Modem CS Card – M2480 🍏

# Why System 7.5 Rebuilds the Desktop

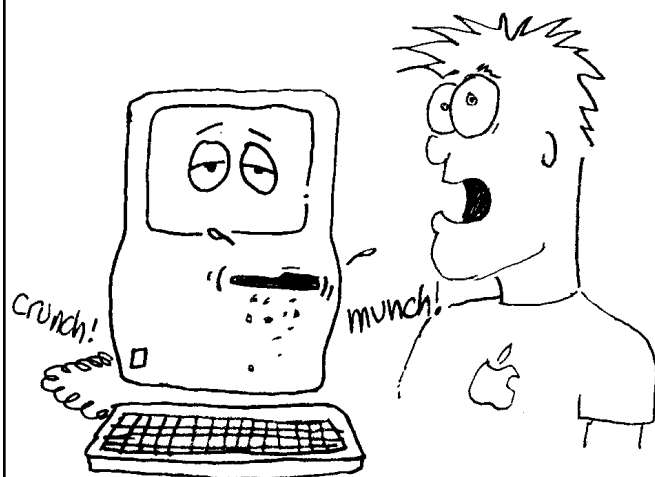
By Mark Hansen

After installing System 7.5, your desktop rebuilds the first time you restart (which is correct). However, you may find that your system sometimes rebuilds the desktop with subsequent restarts. These additional rebuilds are caused by Macintosh Easy Open (MEO). MEO gives you the ability to access files not created on a Macintosh such as DOS, Windows, or ProDOS.

MEO requires the rebuild on restart so that files from a non-Macintosh file system can be assigned a file type that can be recognized by the operating system. MEO handles the assignment of a recognizable file type during the rebuild process.

To alleviate the Desktop rebuild process, remove Macintosh Easy Open from your Control Panels folder and restart your Macintosh. The Desktop is rebuilt one more time at this restart and then it does not occur again unless prompted to do so by holding down the ⌘-**Option** key combination on restart. 🍏

**Alternate Route** • Darren Conrad

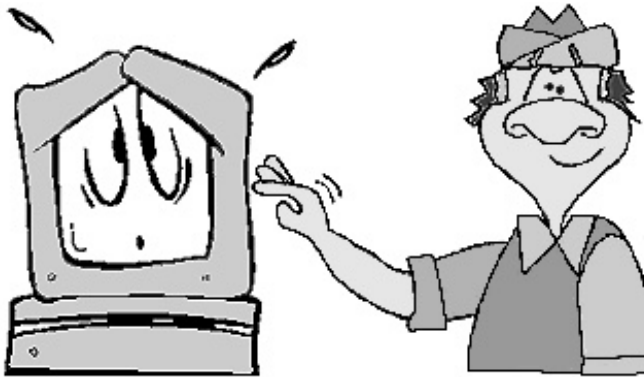


"All that I did was choose 'Erase Disk!'"

# Pushing Your Buttons

By Charlie McCabe

This article describes the location of the Power, Reset, and Interrupt buttons on all modular Macintosh models and PowerBooks. (To determine the equivalent Performa model to the Macintosh models listed here, refer to the Tech Info Library article [Macintosh to Performa Comparison Chart](#).)



## Power Buttons

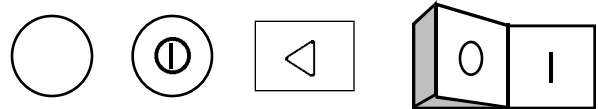
The Power button on modular Macintosh models is typically located on the back of the computer close to the right or left side (depending on the model). When facing the computer, you should be able to reach around to the back of the computer and operate the button.

The Power button on PowerBook models is usually located on the back panel of the unit close to the left side. When facing the computer, you should be able to use your left hand to reach around to the back of the PowerBook, open the back panel door, and operate the button. The Power button for PowerBook 200 models is located on the top right side of the keyboard. The PowerBook 100 has no Power button, just press any key on the keyboard to turn it on.

The Power button location also varies on most Macintosh Centris and Quadra

models. Please refer to the model specific descriptions later in this article.

Power buttons come in different shapes and sizes. Some are push buttons (round or square), which may be plain, or may include a sideways triangle or a circle with a small straight line inside. Others are toggles, which include a 1 and a 0 (1=On, 0=Off). Here are examples of Power buttons:



## Reset and Interrupt Buttons

The Reset and Interrupt buttons are located in different areas on different models. Please refer to model-specific descriptions later in this article.

### **The Reset Button**

The Reset button is marked with a small vertical triangle, as shown here:



Pushing the Reset button restarts the computer. It is the same as turning the power switch off and then on.

### **The Interrupt Button**

The Interrupt button is marked with a circle; if the button is large enough there is a crooked line in the circle. Here are examples of both types of Interrupt button:



The Interrupt button is used by Macintosh software programmers when writing applications and debugging

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them. Pushing the interrupt switch produces a blank dialog box on the Macintosh screen. Programmers can then type codes to obtain the response or information they require from the Macintosh.

### **Modular Macintosh Model Specifics**

This table indicates the typical location for the Power, Reset, and Interrupt buttons:

<b>MODEL</b>	<b>POWER BUTTON</b>	<b>RESET AND INTERRUPT BUTTONS</b>
Macintosh II, IIfx, IIfx	On the back of the computer, toward the right side when facing the front of the computer.	Light grey rectangular plastic switches located on the right side of the computer near the rear. The Reset button is located closer to the computer front. The Interrupt button is located closer to the rear. You must install the buttons.
Macintosh IIcx, IIci	On the back of the computer, toward the right side when facing the computer's front. Rotate the Power button 90 degrees to enable automatic restart if power is interrupted.	Small light grey rectangular plastic switch located on the front of the computer close to the left side. The Reset button is located on the left, the Interrupt button is on the right, as you face the front of the computer. You must install the buttons.
Macintosh IIsi, LC, LC II, LC III, LC 475, Quadra 605,	On the back of the computer, toward the right side when facing the computer's front.	None. To restart (reset), hold down the ⌘, Control, and Power keys. To interrupt, hold down the ⌘ and Power keys.
Macintosh LC 550, Macintosh TV	On the back of the computer, to the right of the power plug when facing the computer's front.	None. To restart (reset), hold down the ⌘, Control, and Power keys. To interrupt, hold down the ⌘ and Power keys.
Macintosh 630 family (Quadra 630, LC 630, and Performa versions)	On the back of the computer, toward the left side when facing the computer's front. It is next to the DB 15 Monitor connector, toward the outside. It is also called the Standby power and is used when the computer won't reset or interrupt.	None. To restart (reset), hold down the ⌘, Control, and Power keys. To interrupt, hold down the ⌘ and Power keys.
Macintosh IIvx, IIvi, Centris 650, Quadra 650	On the back of the computer, toward the right side when facing the computer's front. Rotate the Power button 90 degrees to enable automatic restart if power is interrupted.	Small round buttons in a recessed area on the front left of the computer. The Reset button is on the left, the interrupt button on the right as you face the front of the computer.
Macintosh Centris/Quadra 660AV	On the front of the computer, directly beneath the floppy disk drive toward right side.	None. To restart (reset), hold down the ⌘, Control, and Power keys. To interrupt, hold down the ⌘ and Power keys.

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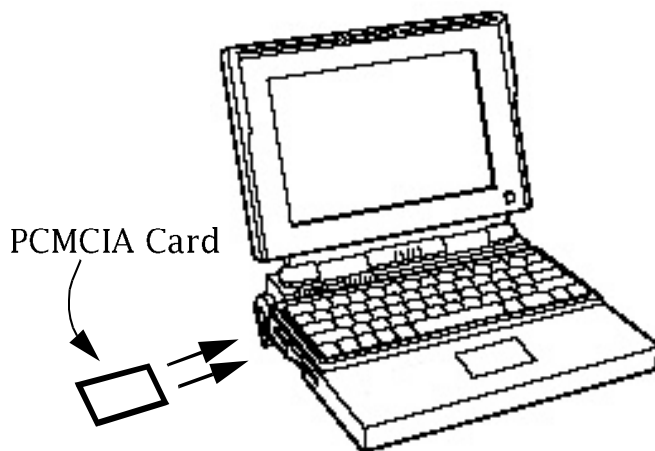
<b>MODEL</b>	<b>POWER BUTTON</b>	<b>RESET AND INTERRUPT BUTTONS</b>
Macintosh Centris/Quadra 610	On the front of computer, directly beneath the floppy disk drive toward right side.	On the back of the computer, toward the left side, next to the Sound output/input port.
Macintosh Quadra 700, 800	On the back of the computer, toward the top when the computer is positioned vertically. Rotate the Power button 90 degrees to enable automatic restart if power is interrupted.	Small round buttons in a recessed area on the front of the computer, toward the bottom when the computer is positioned vertically. The Reset button is on the bottom, the Interrupt button is on the top when the computer is positioned vertically.
Macintosh Quadra 840AV	On the front of the unit, to the right of the floppy disk drive. If the computer “locks up”, hold the Power button in for three seconds to shut it down.	None. To restart (reset), hold down the ⌘, Control, and Power keys. To interrupt, hold down the ⌘ and Power keys.
Macintosh Quadra 900, 950	None. Includes a Key Lock on the front, toward the top left when the computer is positioned vertically. There are three positions for the key lock: Off, On, and Secure. The three positions are marked with a circle, an “I”, and a lock icon respectively.	Small round buttons in a recessed area on the front of the computer, toward the top left when the computer is positioned vertically. The Reset button is on the bottom, the interrupt button is on the top when the computer is positioned vertically.
PowerBook 100	None. Press any key on the keyboard to turn it on.	In a recessed are on the left side. The Reset button is the closer of the two to the front of the PowerBook.
PowerBook 140, 145, 145B, 160, 165c, 180, 180c	On the back of the unit inside the back panel. Open the back panel door to operate the button.	Recessed into the case on the back of the unit. Reset and Interrupt functions are accomplished by using a paper clip to press either button.
PowerBook 520, 520c, 530, 540c	On the upper right of the keyboard.	None. To restart (reset), hold down the ⌘, Control, and Power keys. To interrupt, hold down the ⌘ and Power keys.
PowerBook 210, 230, 250, 270c, 280, 280c	There are two – on the upper right of the keyboard and on the back of the unit near the right side when facing the front of the unit.	None. To restart (reset), hold down the ⌘, Control, and Power keys. To interrupt, hold down the ⌘ and Power keys.
Duo Dock and Mini Duo Dock	On the back of the unit, toward the left side when facing the front of the computer.	None. Use the Power button to turn the unit off and on again. (The Eject button, an additional button on the unit, is located on the right front of the unit, next to the opening. The Manual Eject button is located on the left side of the Duo Dock.)

Check your Macintosh computer’s documentation for additional information. 🍏

# PowerBook 500 Series and PCMCIA

By Stephanie Hahn

The PowerBook 500 series (including 520, 520c, 540, and 540c) has an internal PDS connector that provides access to its 030-based I/O bus, which is accessible through a battery bay. Each of these PowerBooks has two battery bays. The left battery bay can be used as the Processor Direct Slot (PDS) for high-speed access to the system's processor.



The I/O bus provides direct access to all parts of the machine with the exception of the DRAM and ROM. An ASIC supplies bus arbitration logic to let plug in cards act as bus masters, as long as they conform to 68030 bus protocols. This PDS expansion slot can be used for different modules, and is a 16-bit 68030 16Mhz data bus that occupies the second battery on the PowerBook 500 series.

One of the possible PDS expansion options is the PCMCIA Expansion Module, powered by a 16-megahertz Motorola 68030, which slides into the left battery bay. The innovative module design provides slots for two Type I or Type II PCMCIA cards or a single Type III card. The module itself can only be installed or removed when the PowerBook power is turned off.

## **What is PCMCIA?**

PCMCIA (Personal Computer Memory Card Information Association) is a standard for small, credit-card sized modems and other external notebook computer devices. PCMCIA standards define the size and pin configuration for these devices.

## **PCMCIA Expansion Module**

PCMCIA is rapidly becoming a defacto standard for all mobile computers. This Macintosh implementation offers a new level of ease-of-use not seen in the industry's PCMCIA other implementation (DOS, Intel x86 platforms) with the use of software eject for cards as well as the complete integration of the PCMCIA cards into the Macintosh desktop.

The PCMCIA Expansion Module can only be inserted or removed while the PowerBook is off. Insertion or removal of the PDS Module at any other time will result in the PowerBook being reset.

PowerBook computers and PCMCIA expansion are a natural pair. PCMCIA provides a simple light-weight method for PowerBook expansion without adding significant power drain. The PowerBook PCMCIA implementation is a two-phase process. Initially, mass storage, memory, and modems will be the only types of PCMCIA devices that are currently supported. A full range of PCMCIA devices, including network interface cards, will be supported in the future. If you purchase a phase one PCMCIA Expansion Module, you will be able to upgrade your units by downloading a new ROM image into the module's flash ROM. Other software, residing in the system, will also be upgraded. 🍏

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You can now find the Information Alley on these on-line services and BBSs:

- Pittsburgh Apple Business Users Group BBS (PABUG, Inc.) (Pittsburgh, Pennsylvania)  
(412) 828-8011  
Self-registering FirstClass BBS
- Mobius BBS (Savannah, Georgia)  
(912) 231-9207 – 14,400 bps 🍏

### Tips and Tidbits

#### Newton Messagepad

Write “About Newton” on your Messagepad, highlight it (hold the pen down until a large dot appears at its tip then draw a line across the words with it), then tap **Assist**. The names of all the Newton developers appears.

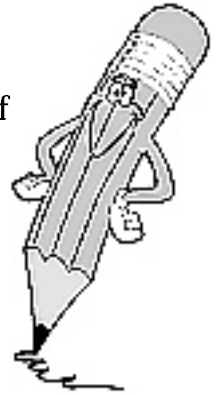
On the original Messagepad (now called the Messagepad 100), tap the clock in the lower left corner of the display, and hold down on it. The display shows you the current temperature! (This is because the battery level indicator works by sensing temperature.)

Go to the Map, tap **Find**, then write “Elvis”. It briefly says “The King was sighted in” and chooses a city name at random before it catches itself and says “not found”. [All three of these were contributed by Scott Ryder.] 🍏

## Calculated Folder Size Guidelines

By Reed Jackson

When you enable “Calculate Folder Size” in the Views control panel, the amount of disk space shown may not be equal to the sizes when all folder sizes are added up. Simply adding up the folder sizes does not include the items on the desktop, nor invisible files.



For example, a utility called Find Pro III found 144 of them; one hundred thirty seven of them were named “Icon”. These files are created when you paste an icon on a folder. If you create an empty folder and paste an icon on it, the “Get Info” window shows that the folder contains zero K and no items. However, if you throw this folder in the trash and “Get Info” on the trash, the window shows one file and one folder in the trash and the size of the file is greater than zero K. Therefore, the Finder apparently does not count invisible files when it calculates the size of a folder.

So remember, the displaying of folder sizes is not always accurate due to the invisible files, which the Finder ignores, and the virtual memory swap file, which is whatever size is set in the Memory control panel. Also, items on the Desktop are not shown as being in any folder but they take up space and are included in total disk usage. By adding up all of the space these items take on the drive, the total amount of disk space used should be very close to the amount of space the disk info shows. 🍏

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Information Alley, 1200 East Anderson Lane, MS: 212-STI, Austin, TX 78752 – email: [alley@apple.com](mailto:alley@apple.com) fax: (512) 908-8018