Kai's Power Tools 3.0

Kai's PowerTools is a collection of plug-ins for Photoshop and photoshop compatible software. It is guaranteed to work with Photoshop, but some of the plug-ins have a problem outside of the strict Photoshop environment. The collection of tools addresses every need for users who want to apply image variable effects to graphics, or those who require tools that can manipulate a digital photograph with options beyond those contained in Photoshop itself.

Kai's PowerTools has always been appreciated for its collection of visually appealing user interfaces, setting a trend that most of its competition is affected by. The interfaces encourage exploration and new discoveries, giving graphics professionals and non-professionals alike the opportunity to develop limitless graphics looks for their projects. The 3.0 version of these effects tools pushes the envelope of potential creativity even further by including several new tools and revamped capacities for upgraded tools from previous versions. Kai Krause, the designer behind these effects, is recognized throughout the industry as one of the most original thinkers and developers when it comes to plug-in effects, and the interfaces that let you access them.

The Tools: KPT3 includes eighteen separate tools, but each has so many variables that the net result is hundreds if not thousands of distinct options. The effects are Gradient Designer, Interform, Spheroid Designer, Texture Explorer, 3D Stereo Noise, Edge F/X, Gaussian F/X, Glass lens, Intensity F/X, Noise F/X, Page Curl, Pixel F/X, Planar Tiling, Seamless Welder, Smudge F/X,

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Twirl F/X, Video Feedback, and Vortex Tiling.

Gradient Designer A gradient is a smooth transition from one color to another, useful for both backdrops and for gradients addressed to targeted selections of an image. A large listing of pre-designed gradients are included, all with visual previews. The tool is easy to use at a basic level, but requires study to master. Six main controls respond to user input:

Mode: Blends, sweeps, bursts, and path shapes.

Loop: sawtooths, triangle and pinch/punch distortions of the gradient shapes

Repeat: interactive mouse control over the amount of times the gradient repeats overall.

Opacity: grayscale, detail, color and various combinations of these settings.

Glue: The way the gradient addresses the image- normally, procedurally, darken, lighten, multiply, subtract and add.

Direction: Interactive mouse control over the gradient's rotation

Options: Feathering options, realtime linking, RIP toggle, and Preferences. In the Preferences menu, selections are included that allow you to load gradients defaults from the gradients library or from the graphic currently in memory. You can also enable graphic tablet interfacing if you own a graphics tablet, and change the way that Gradient Designer writes to the Mac screen. In addition, Hue, Saturation, Brightness, Contrast, Blur, Squeeze, and Cycle can be altered. All of these choices effect the spectrum of colors in the

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chosen gradient. The last two items, Squeeze and Cycle, move the shift of the colors according to your mouse movements.

Main uses include developing gradient backgrounds for typographic material, gradient backgrounds for slide and video presentations, and zenith to horizon blends.

Interform A "Mother" and "Father" texture are used to create an "Offspring" texture. Each of the three, Mother, Father and Offspring, are animated on the preview screen, showing you various areas of the selection each passing moment. Resultant textures can be applied to the image or selection and saved to disk. Resultant offspring can also be saved to one of ten library areas for later recall. This effect requires time to get used to and more to master. Two main controls respond to user input:

Opacity: grayscale, detail, color and various combinations of these settings.

Glue: The way the gradient addresses the image- normally, procedurally, darken, lighten, multiply, subtract and add.

Options: Three speed settings for the animated previews and a Preferences setting (Graphics Tablet and screen settings).

Excellent for developing textures from combinations of other textures already resident in the KPT3 texture library. This module is very game-like in design which enhances an exploration of its features. Developed textures can be applied to 2D pages, selected areas, or used as video backdrops.

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Spheroid Designer Kai describes this interface as being originally digitized from a "stale brownie", and if you look closely it's not hard to conceive of it as true. Spheroid Designer is used to wrap 3d textures around spheres, and it has so many variations and possibilities, it could act as the main topic of a dedicated graphics book. Spheres were one of the original elements of computer graphics artists, so the tool has both a historical perspective as well as a dedicated current use. This tool is simple to use at the basic level, but I doubt that it could ever be truly mastered if mastery means understanding all of its variations. It is worthy of years of study and exploration. Its controllers are numerous and varied.

KPT3 Spheroid Design Genesis Editor A separate topic unto itself, the Genesis Editor allows even more variability to the Spheroid Designer output. An interactive screen gives you control over the overall shapes that groups of spheres will take when rendered to the screen. Though a library of shapes are provided, each can be varied as to zoom, randomness of sizes and other necessary parameters. An outline of the shapes appears for final tweaking, followed quickly by a full color preview. The genesis Editor is especially useful when large numbers of spheres are to be rendered (either the 500 or 1000 setting).

With this tool, you can design backgrounds that incorporate any number and variety of 3D shadowed spheres, from planets to marbles. Because of the capability to add textures from your own library of images, the rendered spheres can be personalized to your needs. One idea might be to take a graphic of a company logo and transform it into a sphere. Another might be

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to add realistic 3D eyes to your chosen images.

Texture Explorer This is KPT3's texture generation engine. It is accompanied by a visual library of default textures, and you can add your own saved textures to this library as well. Once a texture is chosen, its mutated cousins appear around it. These mutations can show global maximum or minimum diversity, so the final texture can be exactly what is required. If not, a close relative of the chosen texture might be a better choice. Textures can be altered as to direction, opacity, hue, and all of the other standard parameters. These KPT3 textures are "infinite" in that they vary over space, so they do not look like repeated or tiled graphics. Options include "Filling the selected area", which writes the whole texture to the area, or "Scaling to fit", which writes only a scaled version of the texture to the area.

Use these textures wherever their unique looks are called for, from backgrounds to filling in selected areas of an image. When you use the Procedural application settings (plus or minus), you'll be able to blend the textures into the painted areas of an image. Creating cloth-like effects can be accomplished in this manner.

3D Stereo Noise This renders stereograms, the current buzz in graphics that allow the eye to see 3D images without glasses when you learn how to focus your vision. The Stereo Noise effect can be applied in color or grayscale and in variable opacity over the graphic. Uses are up to the artist needs regarding the introduction of stereo noise into an image.

Edge F/X This is one of the six F/X filters in KPT3. Once the small F/X interface

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is on-screen, any of the six can be called up from the interface itself. The interface appears as a magnifying glass, and can be moved interactively over an area in the image to preview the F/X settings. "Edges" are in an image that the eye sees as an outline, as for example the circular edge around a sphere. This filter allows you to adjust the contrast of an images edges to modify the way the edges stand out from the rest of the image. Uses depend on the artist and the need to enhance or mute an images perceived edges.

Gaussian F/X This is also known as "Gaussian Blur", but instead of verbal commands, KPT3 gives the user an interactive visual interface. Use it anytime you want to add blurring to all or part of an image.

Glass Lens This movable interface applies a spherical lens effect to any selected part of an image. It is best applied when the selection is an oval or circular shape, otherwise, the results are not predictable. There are three main choices: Soft, Normal and Bright. Opacity and application parameters can vary. Use the Glass Lens whenever you want to transform an area of the image into a 3D sphere, complete with a perceived reflective light source.

Intensity F/X As another of the F/X group, Intensity varies the way that sharpness, fading and other selections can be varied in their intensity when applied. Intensity F/X works in conjunction with these other effects.

Noise F/X This is different from Stereo Noise. It can be compared to the static appearing on your TV screen when their is no transmission of the video signal. use it when you desire a graphic to evidence noise, as if it were grabbed from a noisy TV station signal.

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Page Curl This adds an imposed graphic that looks like the edge of a picture is curling. It works on any selected area of the image. You can vary the transparency of the curled section, and also the image "underneath" the curl. Eight different directional curls can be applied. Use it when you desire that your image evidences a curl. This application is very useful for giving images an old parchment appeal.

Pixel F/X As another of the F/X applications, Pixel F/X applies a controllable pixel based noise over the selected area of an image. This results in either dirtying up the image, or giving it a look as if it were placed behind frosted glass, depending on how the controls are adjusted. use it when you desire any of these options.

Planar Tiling If you need to see your image, or any selected part of it, tiled over an infinite plane, then this is the filter for you. The tiled look can be applied at opacity, so that you can create a composite of the tiled look and the original image. The second option in planar tiling is the Parquet mode, which tiles a surface as if seen from directly overhead with no perspective. If perspective is chosen, KPT3 allows you to interactively adjust the horizon line and vanishing points. Use it when you need to reinforce the perspective of a graphic, as for instance in the rendering of a tiled floor that seems to disappear towards the horizon.

Seamless Welder This effect creates images that are wrap-arounds, similar on the edges, so that they can be used to texture a 3D object without a visible seam. Use is for 3D artists, although there are occasions when a 2D seamless

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weld might be desired.

Smudge F/X Smudge F/X is in the F/X group. It allows you to add a perceived smudge or smearing in any direction and intensity you choose on the targeted selection or the whole image. Use it when you need to enhance a felt "wind direction" in an image, or when you need to draw attention away from a background image (as for instance as background to typography).

Twirl F/X Twirls are cyclone-like whirlpools, and this member of the F/X group allows twirls to be imposed on any selected image area in a graphic. The twirls can be adjusted as to intensity and direction, and variable opacities can be used. Twirls are really useful in the creation of perceived wind and water movements, and subtle applications of them in the right photos can heighten the drama of the image.

Video Feedback This effect applies either video feedback or telescope feedback to the selected area of an image. If you've ever pointed a video camera at the monitor its transmitting signal was connected to, you have seen video feedback. It is exemplified by a series of cloned images in a spiral. telescope feedback is just a variation on the same theme. This effect can come in handy when creating flower forms from selected areas of images, and also helps in the generation of abstracted backgrounds.

Vortex Tiling. Like a black hole in deep space, vortex tiling makes it appear as if an area of an image is sucking in everything around it. KPT3 offers two different vortex possibilities, Pinch and Normal. Normal uses the whole selected area as a basis for the effect. Pinch uses only a movable section of it.

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The intensity and opacity of the effect can be altered to your liking, and it's all done interactively with the mouse. This effect is very useful when applied to water and space graphics, adding a very organic and believable look.

KPT3 System requirements: 68040 with FPU or Power Mac with System 7.x. 2MB RAM for software. (A total of 16MB of RAM is essential if you are planning to run KPT3 in Photoshop).

Kaidan

Manufacturers or accessories for the **QuickTake** camera and for use when creating QuickTime VR panoramas. Products include:

- CloseFlash A flash attachment available for the QuickTake and Kodak DC40 digital still cameras. The attachment is placed in front of the camera, very close to the lens. It provides much better illumination of objects that are extremely close (a few feet) to the camera.

- CloseTake Close-up lens attachments for the QuickTake camera.

- WideTake A wide angle lens attachment for the QuickTake camera.

- QuickPan A panoramic tripod head for use in taking multiple image QuickTime VR panoramas. The tripod head includes a detent wheel that ensures that each images is evenly spaced. There are three models currently available: one for the QuickTake camera, one for Kodak's DC40 camera, and a general purpose version for use with 35mm

cameras. Note that the different units are recommended for the QuickTake and DC40, because the nodal point of the cameras is different, and when taking a panorama the camera must rotate around its nodal point.

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See Also
DC40; Peace River Studios; QuickTake; QuickTime VR

Kaleida Labs
See
ScriptX

Kaleidagraph
See
Charting and Graphing Applications

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Kaleidoscope

Kaleidoscope from Abbott Systems, Incorporated is the perfect software for visualizing the fractal universe connected with the mathematical graphics generated by Mandelbrot mathematics. The title bar across the top of the Kaleidoscope screen contains four buttons, from left to right:

- Close button: quits the program.
- Menu button: shows the Kaleidoscope menu commands
- Icon button: reduces the window to an icon without quitting the program.
- Zoom button: resizes the window to its previous size.
- Menu button: displays the Kaleidoscope menu commands:
- Home: Display the full Mandelbrot set
- Go Back: Zoom back out to previous image
- Open Snapshot: Open a snapshot file
- Save Snapshot: Save current image as snapshot file

Snapshot files contain only the image parameters, not the complete image in pixels, so they take up far less space on disk than PICT files. There's no limit to the number of Snapshots you can take. You can view your Snapshots anytime, just choose Open Snapshot from the Kaleidoscope menu, or double

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click the Snapshot file. You can transmit Kaleidoscope images over networks, using Snapshot files for super fast transmission. The recipient must own Kaleidoscope to view them. Take a Snapshot when you have zoomed into the Mandelbrot set many levels deep and you find a particularly interesting area.

- Save as PICT: Save the current image as a PICT file
- Page Setup: Sets printer output choices for printing
- Print: Prints the current image
- Draw Top to Bottom: Draws image top to bottom
- Draw Inside Out: Draws image starting in center
- Draw Random: Draws image in random sequence

(The three "Draw" commands are used for aesthetic purposes only when viewing the screen changes).

The Main Display shows the current image, below which are nine other buttons:

- Redraw button (Green): used to redraw the current image if the resolution has been changed.
- Stop button (Red): stops image drawing. Click again to resume.
- Four Color buttons: changes the color scheme of the image.

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- Two Special Effects buttons: cause the color scheme to cycle-animate if you have your monitor set to 256 colors. To stop the animation press Command-Period (.).

- Resolution button: determines how detailed the image is drawn. Click the arrows to increase/decrease. A higher number means more resolution.

When you first start Kaleidoscope, or if you choose Home from the Kaleidoscope Menu, Kaleidoscope displays the complete image normally associated with the Mandelbrot set. To zoom into any part of the image, point the 'cross hair' cursor to the desired part and click. A small square shows you which part of the image will be magnified to full view. If you wish to magnify a larger portion, you drag the cursor to make the square bigger.

As you zoom in through many levels, you can increase the resolution parameter to get more detail. You might want to zoom in at low resolution until you reach an area which you are interested in, then recalculate the image at higher resolution (click the Stop button, change the resolution setting and then click the Redraw button.) Kaleidoscope does all image calculations in background mode, which means you can do other things while Kaleidoscope is drawing. During long calculations, you might want to reduce Kaleidoscope to an icon and leave it calculating while you continue with your other work. To stop image drawing at any time, click the Stop button. Click again to resume. To Zoom back out, choose **Go Back** from the Kaleidoscope menu.

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You can change the way images are colored by clicking the four Color buttons. The first two buttons are fixed color palettes, the third button is a black & white palette and the fourth button (a question mark) assigns a palette of random colors.

Kaleidoscope can create incredible screen saver type displays. To see these, first set your monitor to 256 colors, then click the Special Effects buttons. The Mac desktop is blanked out and the current image is displayed with a moving color palette, creating an animation effect. Kaleidoscope images can be saved as PICT images for other applications.

Kare, Susan

Susan Kare was creative director of the Macintosh team from 1982 to 1985. Her title during that time was Macintosh Artist. Much of Kare's work can still be seen in the Macintosh computers of today.

Kare created much of the Macintosh interface's appearance and style, including the cursors, titlebars, icons, and fonts. The MacPaint "hello" that greeted many early Macintosh users was created by Susan, as were most of the patterns and icons in MacPaint itself.

Susan designed all but one of the bitmapped fonts that shipped with the original Macintosh, including Chicago, Geneva, Cairo, New York, Toronto, Taliesin, and San Francisco. (Venice was created by **Bill Atkinson** .) Many of these fonts were designed to be low-resolution bitmapped versions of popular

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copyrighted typefaces, such as Times (New York) and Helvetica (Geneva). Her Cairo font is the source of the half-dog, half-cow character that later became known as the **dogcow** .

After her time at Apple, Susan Kare worked for **NeXT** as creative director, developing NeXT's graphic identity. She left NeXT to go into business for herself as a computer interface designer and illustrator.

See Also
Atkinson, Bill; Dogcow; Macintosh, History; NeXT

Kawasaki, Guy

Guy Kawasaki was the best known of Apple's Software evangelists, whose job it was to convince software developers to create programs that would run on the Macintosh. This **evangelism** was aptly named. Guy and his fellow evangelists were true believers in the Macintosh, zealously selling the vision of this unique new computer.

After the Mac's introduction, Kawasaki continued in his role of software evangelist for several years. In 1987, he left Apple and formed ACIUS to market the 4th Dimension (4D) database. Apple had acquired the U.S. rights to 4D from its French creator, Analyses Conseils Informations (ACI), but decided not to market it for fear of hurting Apple's relationship with Ashton-Tate.

Conversation with Guy Kawasaki

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His business card used to read Software Evangelist. He inspired developers to create great software for the Mac, then went out and made some himself. He's contributed columns to *MacUser* and *MacWorld*, and wrote books such as *The Macintosh Way*, *Selling the Dream*, and, our favorite, *How to Drive Your Competition Crazy*. Now Guy Kawasaki's back as an Apple Fellow.

Maclopedia : So how did you first get involved with the Mac?

Guy : Mike Boich showed it to me in summer 1983. When I saw it, the waters parted. They showed me the bouncing bottle caps and early MacPaint and MacWrite, and I had used an Apple II a little, but I wasn't a computer person. But it was obvious that this was it. It took thirty seconds.

Boich and I had gone to Stanford together, and he recruited me. It was purely the fact that I had gone to school with him; it had nothing to do with competence. The idea of evangelism came from Mike Murray. Basically, we used fervor and zeal but never money to convince developers to create software for a computer before it made sense to develop anything for it, hence the idea: evangelism. We would take the prototype out and show it to people, and the people who got it, got it in the first thirty seconds, and the people who didn't get it right away never got it.

I worked on all the little ones, Panorama, the database (it was called Overview then), Desktop Express from Dow Jones, FileVision, just the oldest, smallest ones. The best book on Mac history back then is *The*

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Mac Bathroom Reader, by Owen Linzmayer.

Maclopedia : So why did you leave Apple in 1987?

Guy : I left Apple for three reasons. The first was that my job was done. Another is that, basically, I wanted to listen to my own hype about the opportunities in the Mac world, so I wanted to start my own company and make millions of dollars. And the third reason was that I was up to become a director, and I was turned down, and they said it was because while small developers loved what I did, three big ones, Lotus, Microsoft, and Ashton-Tate, weren't so in love with it, so that pissed me off so much that I left. I went to ACIUS to work with 4th Dimension until 1989, then I wrote for MacUser and wrote books.

Maclopedia : You came back to Apple as a Fellow, the first one in the marketing area, in 1995. How did Apple seem different?

Guy : It was a little more shell-shocked, but Apple is always shell-shocked. Someone is always predicting that we're going out of business. But after a while, you don't worry. People still come here because they want to make the world a better place, as opposed to dominating the world.

Maclopedia : Why did you come back?

Guy : I am a warrior, and a warrior needs a war. My war is to bring cool Macintosh software to fruition, create the finest developer program in the industry, and kick Microsoft's butt.

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Maclopedia : How did you come up with the idea of an Internet list of pro-Mac items?

Guy : The name itself came from someone on the list—you know, I was an evangelist, so why not call it the EvangeList? But I got the idea because there was so much bad news about Apple, basically only bad news, so this is a place you can go to get good news. We have 20,000 subscribers now, with total distribution to about 100,000 people. That's one of the top 5 most popular lists today!

Maclopedia : How are Mac users different?

Guy : They're cooler, hipper, more intelligent. We use more software. Mac users have at least five pieces of software. There are six million Mac users, so that means 30 million applications. I was a software entrepreneur, and let me tell you, in a market of 30 million pieces of software you can make money. That's plenty big enough. I think it's better to be a medium-sized fish in a medium-sized, unpolluted pond than an amoebae in Microsoft's swamp.

Maclopedia : Why don't more developers port products from Windows to the Mac, then?

Guy : Three reasons. First, it takes real courage because if you're simplistically counting beans, it appears that the Macintosh market is 1/5th the size of the Windows market. In actuality, the Windows run rates are usually 2 to 2 1/2 times Macintosh run rates. Second, the

Macintosh market intimidates many developers. Macintosh owners are very demanding and discriminating. Simply porting a Windows product to Mac without taking full advantage of Mac conventions like drag-and-drop guarantees failure. Thus the Macintosh market is smaller and tougher—definitely not for the faint-hearted. Third, we haven't tried to woo these Windows developers enough. This will be fixed.

People still come here [Apple] because they want to make the world a better place, as opposed to dominating the world.

Maclopedia : Has Apple gotten the message?

Guy : Windows 95 is the best thing to happen to Apple in a long, long time because it hit us like a 2-by-4 right between the eyes. There's a new attitude—more aggressive and forceful and competitive. And there's a realization that a huge part of Apple's success hinges on taking care of developers. We are more honest and up front with developers now. We are more open to enabling developers to lead us into areas we haven't explored. If we want to continue to lead the market with the coolest computers, we really have to take the risks that no one else would take. It's in Apple's DNA to aspire to be the most innovative company and platform in the industry—to resist the known and seize the unknown. I wouldn't be here if we were shooting for anything less.

On Guy's EvangeList he gives a list of Simple Things You Can Do to Save Apple

Computer, which we reproduce here with his permission.

- Wear Apple/Macintosh garb to show the world that we're not crawling into holes and dying.

- Strike up a conversation with people you see using Macintosh—especially on airplanes. Reinforce that they did the right thing.

- When you stay at a hotel, go see if there are Macintoshes in the business center. If there is, thank the person. If there isn't, ask why not.

- When you see people using a PC (a dead giveaway of PC laptop is that Solitaire is running) ask them if their company forced them to use it.

- Ask store clerks why there isn't more Macintosh software on the shelves.

- Ask store clerks why there aren't more Macintosh models for sale.

- If you hear a store clerk spreading ignorance and lies, wait until the clerk has left (usually 45 seconds) and go talk to the customer about their computer needs.

- Check to see that the Macintosh floor models are running and their desktops are orderly. Do not, however, sabotage the PCs. This creates bad karma.

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- Forward EvangeList postings to as many people as you can.

- Write a letter to the publications that publish stupid, insipid, inaccurate, and unfair stories. (This will keep you really busy right now). Most journalists are insecure and perceptive: after the 300th flaming message, they'll get the picture.

- Donate your old Macintosh to a school, church, or other not-for-profit. Every Macintosh out there sells more Macintoshes.

- Read *MacUser*, *MacWorld* (even though the inside back column just isn't what it used to be), *MacWEEK*, and *MacToday* on airplanes and then leave them in the seat pockets for the next passenger.

- Subscribe to the EvangeList by sending an email to: listproc@solutions.apple.com and include in the body of the message the text Subscribe Macway and your name.

Kawasaki also pursued writing, and has since written a number of excellent books on using evangelism in business and in everyday life, including *The Macintosh Way*, *Selling the Dream*, and *How to Drive Your Competition Crazy*. At various times, he has written columns for both MacUser and MacWorld magazines. He has also been involved in several start-up Macintosh software companies, including Fog City Software, the creators of Claris eMailer.

In 1995, Kawasaki returned to Apple as an **Apple Fellow** , charged with improving Apple's relationship with developers. In his new role, he has helped to make Apple's development tools and documentation more

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accessible, as well as restarted the classic zealous evangelism of the early days of the Mac.

Kawasaki has set up a mailing list for Macintosh fanatics who are personal Mac evangelists everyday. You can subscribe to the EvangeList by sending a message to evangelist@macway.com.

See Also
Apple Computer, History; Evangelism; Macintosh, History

Keep It Simple Spreadsheet
See
Let's Keep It Simple Spreadsheet

Ke:nx

Ke:nx (pronounced "connects") is a hardware/software interface for the Macintosh that helps people with physical or cognitive challenges access the computer. It comes in two parts: a box that plugs into an **ADB** port and accepts a variety of input devices including alternate **keyboards** , switches, pointing devices and **joysticks** ; and the necessary software to allow the Mac to communicate with these devices.

PowerMouse is the Ke:nx program that turns any kind of input device into

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one that can work like a mouse on-screen. It also gives the user the ability to scan menus, buttons, and markers, and click a simple switch to activate them.

Ke:nx provides a way for people who cannot use the standard keyboard and mouse to successfully run any Mac software program. It enables computer users to select from a wide range of input methods, according to the kinds of physical abilities they have. In addition to accessing the computer, the Ke:nx software enables users (or their teachers or therapists) to customize, create, and print overlays for alternate keyboards to use with any program.

Ke:nx can be used with the TASH mini-keyboard as well as with KeyLargo and similar large keyboards. It's easy to remap the keys to fit popular software programs that may already be used in the classroom, or to work with common word processors and spreadsheet programs so that a newly disabled adult can still manage his or her finances and correspondence. It will accept Morse code input and translate the radio operators' dots and dashes into standard ASCII characters for speedy text input.

By placing a keyboard on the computer screen, Ke:nx can give text access to people who can manage a mouse-type device such as a joystick or trackball, but are unable to type. When scanning is added to the on-screen keyboard, Ke:nx enables even single-switch users to write letters, play games, and make full use of all the Mac's capabilities. It literally opens a new world for many people who have been unable to use standard keyboards or pointing devices.

Ke:nx can even turn the Macintosh into a communication device with its picture-based displays, high-quality speech output, digitized and text-to-

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speech capability. The included software (Ke:nx Create) helps users to create their own communication keys, and it works with DynaVox, Liberator, and other standard communication devices. Ke:nx has enabled thousands of people with disabilities to make full use of the computer at home, in school, and on the job.

See Also
Co:Writer; Freedom; Talk:About

Kermit

A file transfer protocol for retrieving and sending files on the Internet. Named after the popular Kermit the Frog. Kermit is generally slower than **XMODEM** , **YMODEM** , and the top-of-the-line **ZMODEM** .

See Also
File Transfer Protocols, Modem, Modem Transfer Protocols

Kernighan, Brian

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Kerning

Kerning adjusts the horizontal spacing of characters in a line of type. Note that it's not the same as **tracking** , which adjusts the letter and word spacing of an entire line of type. Kerning is generally used for type larger than 14 points, because it's hard to see any noticeable difference in smaller fonts. Kerning closes the gaps between letters that, when normally spaced, appear too far apart because of the shape of the individual letters.

Letter combinations such as To, VA, and Yo, usually need to be kerned. The following figure shows an example. Most word processors apply automatic kerning when you specify a font size to kern. DTP programs such as PageMaker enable custom kerning as well, because automatic kerning might not be sufficient for all fonts.

See Also
Letter Spacing; Printing Terms; Tracking

Key Caps

This is a **desk accessory** in the Apple menu that enables you to see all the characters and special symbols in any font. It gives you a visual keyboard Map off all the characters that are accessed by using different modifier keys, as shown in the following figure. For example, if you need to use the trademark symbol (™) in a business letter, but don't know how to access that

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symbol, you'd use Keycaps. When it opens, it shows you a drawing of your keyboard and as you hold down different **modifier keys** (Option, Command, Shift, and so on) the keyboard graphic changes and shows you all the hidden symbols. In Key Caps, you'd instantly see that the trademark symbol is accessed by holding down the Option Key and pressing the number 2 on your keyboard.

Key Caps has its own **font menu** (accessed under the Key Caps menu) that lists all the installed fonts in your system so you check as many fonts as you like for special symbols while Key Caps is open. This is helpful as not every font offers the same set of symbols. Key Caps is especially useful for finding characters in a font that is all symbols, like Zapf Dingbats or Carta. Key Caps also offers you an typing window so you can try different combinations of keys from your own keyboard, or you can point and click keys on the Key Caps keyboard.

To use Key Caps, follow these steps

1. Choose Key Caps from the Apple menu (Key Caps comes pre-installed in the Apple menu in all Macintosh models.)

2. Choose the font you'll be working with from the pop-down list under the Key Caps menu that appears when you launch Key Caps.

3. If the character or symbol you're looking for does not appear in the window, first hold down the Shift key to see if it appears. If not, then hold down the Option key and look to see if it appears on the keyboard

now. If it appears, then look down to your real keyboard and see if you can figure out which key from the screen, matches the key on your keyboard. Continue to hold the option key and type the letter that most closely matches the one on the screen. (It's O.K. to type with Key Caps active, the characters will only appear in Key Caps Window.

See Also
Apple Menu; DAs; Font Menu; Fonts; Modifier Keys

Key Commands
See
Keyboard Shortcuts

Key Frames
This term is used in both animation, and in video compression.

In animation programs, key frames are points in an animation sequence that define the bounds of a particular movement. Take, for example, a car moving from the left side of the screen to the right, over a length of 50 frames. In frame 1, the car is on the left hand side of the screen (key frame 1), and in frame 50, it is on the right hand side of the screen (key frame 2). Most animation tools will let you define these two locations, and then **inbetweens** (also called tweening) to calculate the location of the car in each frame

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between the first and last key frame. Most programs (such as the 2-dimensional Macromedia **Director** and Specular's **Infini-D**) enable you to adjust the motion by defining acceleration and deceleration, and create multiple key frames for a sequence.

When compressing digital video sequences, key frames provide random access capabilities for the video sequences, whereas most video **compression** algorithms produce much of their file size reductions by saving a frame as the difference between the current frame and the previous frame. For long sequences that are similar, this produces tremendous file savings, but if you want to display frame 100, then frames 1 through 100 must first be read. This is not a problem if you are sequentially playing the movie, but if you want the user to be able to jump randomly in the movie, then key frames become very important. A key frame is the whole frame compressed independent of its neighbor. When using a compressor, key frames are usually expressed as a key frame rate (i.e. a key frame every x frames). It is also possible to define key frames explicitly.

See Also
Compressor; Inbetweening; CD-ROM Movie Maker; Movie Cleaner Pro; QuickTime

Keyboards

Desktop Macs do not automatically come with a keyboard. **Performa** Macs

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come equipped with an **Apple Extended Keyboard** , which may not be correct for your needs. So, when you purchase a Mac, you will find yourself shopping for the keyboard that best fits your requirements.

Computer keyboards resemble the typewriters from which they originated. Many other input methods are available, but the keyboard remains the most common and familiar device for inputting text and numbers into a computer. Preference for a particular keyboard design, size, ergonomics, and color are subjective to personal tastes as well as your height, plus the size and shape of your hands.

Some people are concerned with compactness because they don't want to give up desk space. Others want big keyboards bristling with lots of keys and light-emitting diodes. Touch typists have particular preferences about the mechanical resistance of the keys and the overall layout and dimensions. The little bumps on the D and K keys are there for touch typists. These bumps on the **home keys** are what keep your fingers in the right place. In other situations (retail and industrial users, particularly), you may need waterproof and dustproof keyboards. You should try typing on the keyboard you want to buy before making a purchasing decision.

Ergonomics are an important consideration. Take care to place your keyboard at a comfortable height. Long hours of typing can lead to carpal tunnel syndrome if your hands and writs are a uncomfortable angles. Ideally, your hands and wrists should be flat, not bent. Most keyboards have a height adjustment, but you shouldn't use them; the back of the keyboard

should be kept down, not up. Wrist rests can help level your wrists and are an essential accessory. Look for one that is soft and that raises the writs up to as flat an angle as possible.

An alternative to the traditional keyboard that allows alphanumeric input is the *chording keyboard*. These strange-looking devices usually are curved to fit the hand with a button for each finger; you use the buttons in various combinations (like playing chords on a piano) to enter all letters of the alphabet. Court stenographers use similar devices because of their speed, thought some time must be spent learning to use the keyboard. Chording keyboards can also be useful for people with disabilities, as they enable you to type one handed.

If your work involves extensive numeric entry, you should have a numeric keypad. The typewriter-style row of numbers across the top of keyboards frustrates most people. Many keyboards, such as Apple's extended keyboards, have a numeric keypad built in, but you can buy one as a separate ADB accessory. Some keyboards also offer the option of an adjustable numeric keypad to accommodate left-handed numeric entry.

The following table describes keyboards from Apple and third-party vendors and represents a cross-section of those available.

Keyboard Options for the Mac

Manufacturer	*Model Name*	*Features*	*Street Price*
Apple	Apple Design Keyboard	105-key extended	

	layout, right-hand numeric keypad and 15 function keys. Works with all Macs with an ADB port. Height adjustable, 1 ADB port and a permanent ADB cable. $90
MicroSpeed	Mac Keyboard Deluxe 105-key extended layout that is smaller and lighter than the Apple Extended Keyboard. 4 ADB ports. $69.95
Business Technology Manufacturing	
	ADB Industrial Keyboard Waterproof and dustproof 105-key extended keyboard useful in factory or laboratory situations $480
Key Tronic Corp.	MacPro Plus and Trak Pro Ergonomic and configurable extended keyboards with larger Return keys than Apple's offering along with swappable Control and Command key pads; some with attached trackballs. $179 (MacPro Plus) and $249 (Trak Pro)
Datadesk International	TrackBoard Keyboard Full-size (105-

	key) keyboard and 3-button trackball combination, programmable, color-coded key caps. $99.95
Datadesk International	101E Keyboard Includes **Mavis Beacon Teaches Typing** software $79.95
Health Care Keyboard	Comfort Keyboard Splitable (3-way) keyboard with adjustable heights and angles for each section. $795
Infogrip	BAT Personal Keyboard Chording keyboard for left or right hands N/A
PowerUser	105 Extended Keyboard Enlarged return key, "T"-shaped cursor pad, 15 function keys, second ADB port $59.95
Adesso	Tru-Form Keyboard Contoured keyboard, built-in wrist support, wrist height adjustment, slit-key design $89.95

You can also purchase any PC-compatible keyboard and use it with your Mac by buying the $99 KeyStone adapter from Silicon Valley Bus Company.

See Also

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Apple Desktop Bus; Apple Extended Keyboard; Keyboard Layouts; Keyboard Mapping

Keyboard Buffers (Keyboard Shortcut)

If you've ever chosen a **command** in an application, such as the **print** command, and you know that you want to use the current settings in the print **dialog box** , you can choose print and then press the **Return key** before the dialog box even appears. By pressing the Return Key, you've chosen the default button of that dialog box, which in most print dialog boxes is the command "Print". The print dialog box will flash on the screen and disappear because the keyboard buffer stores your Return key keystroke and places it there for you when the dialog appears. This buffer is actually a temporary memory buffer. You can see it in action anytime you type letters faster than the computer can display them. Even after you've stopped typing, the letters you've typed soon "catch-up" and display on screen. With the keyboard buffer you can press ⌘-P (the keyboard shortcut for Print) and press the Return key (for OK). You don't have to wait for the print dialog box to fully draw before you can enter OK.

See Also
Command; Default Button; Dialog Box; Keyboard Shortcuts; Print; Return Key

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Keyboard Commands

There are two basic types of **commands** in the Macintosh environment: keyboard commands and menu commands. Keyboard commands are instructions you enter by pressing a key or combination of keys on the computer keyboard. Menu commands are commands listed in the **pull-down menus** of the **Finder** or any application. These menu commands are arranged by topic in the **menu bar** at the top of your screen. An Apple Computer logo appears in the far left corner of the menu bar. Menu commands enable you to access certain features of an application by selecting commands using the **mouse**. Typical application menu commands are Print, New, Save, Save As, Open, and Quit, which appear under the topic heading File. Many menu commands can be accessed through **keyboard shortcuts** that activate commands without using the mouse. If a menu command has a keyboard shortcut, the keys listed to complete the shortcut are generally noted to the right of the menu command. If, for example, you click and hold the File menu, you'll notice that to the right of the Print command is the command symbol (⌘ followed by the letter P. That is telling you that the keyboard shortcut for the Print command is ⌘-P.

See Also
Commands; Finder; Keyboard Shortcut; Menu Bar; Mouse; Pull-Down Menus

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Keyboard Control Panel

The Keyboard **Control Panel** enables you to use alternate **keyboard** settings for your computer. This is helpful if you're using a keyboard layout other than U.S. English. The control panel enables you to remap the keys to the standards of foreign languages. You can also set the Key Repeat rate (the rate at which keys repeat the character if you hold a key down and how long the delay is before a character starts repeating). These options are set by using the **radio buttons** at the top of the panel.

If you have alternate keyboard layouts installed, you can select them from the list.

To use the Keyboard Control Panel, follow these steps:

1. Select Keyboard Control Panel from the Control Panels submenu on the Apple menu (or System Folder). .

2. Double-click to open the control panel.

3. Select alternate keyboards from the list.

4. Select your Key Repeat Rate and Delay Until Repeat Rate by clicking the radio buttons.

See Also
Control Panel; Keyboard; Radio Buttons

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Keyboard Layouts

Apple provides System files that add recognition of special symbols unique to various languages to its operating system. Each country is responsible for creating a unique version of System software to meet the specific hardware and software configuration needs. Japan, for example, has a version of System software which supports full Kanji language characters. The System software is also designed to work with the Kanji keyboard hardware to support English character input on a Kanji keyboard. Apple supports the 2-byte characters required in Kanji, through its **WorldScript System extension** in System 7.x So-called 2-byte languages require twice the register space as a 1-byte language such as English, to store and display the characters.

In the United States, Apple provides foreign language support with language kits, which contain custom pieces of System software and keyboard drivers and layouts to support both English and another language. Apple's Language Kit for Japanese and Chinese dialects are examples of software products containing 2-byte System software extensions and keyboard files which are accessible with English System software.

Keyboard layouts enable Mac System software to recognize custom symbols used by specific countries on any Mac keyboard. There are also dozens of Roman keyboard layouts, which include the English, French, and Spanish languages. Custom Roman keyboard layouts exist for the United States, Britain, Canada, France, Switzerland, Germany, Spain, Sweden, Norway (two

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styles), and Italy. If you have custom keyboard layouts installed in your System (see the illustration below), they will appear in the **Keyboard Control Panel** . You can only use one keyboard layout at any given time on your Mac, but you can change your keyboard layout without restarting your computer. Additional keyboard layouts for other languages are available from Apple and all are designed to be used with System 7.

See Also
Apple Desktop Bus; Apple Extended Keyboard; Keyboards; Keyboard Control Panel; Keyboard Layouts

Keyboard Mapping

The Macintosh OS recognizes the keys you press on your keyboard because it has assigned each key a unique code, or number. The Mac uses a specialized **keyboard driver** that assigns (or maps) the key code to a given character. When the keyboard driver receives a key code, it looks up the code's corresponding character in a System file called **KCHR** that contains the map to that keyboard. The driver passes the appropriate character to the active application. The **Keyboard Control Panel** lets you change the KCHR resource to access other language maps.

There is also software, such as CE Software's QuickKeys and Connectix' Connectix Utilities (whose control panel window is displayed below), that lets you remap the keyboard to fit your specialized needs. For example, you can

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set up the Home key to Delete, or assign a key to curly quotation marks. You can also remap the keyboard from the standard **QWERTY** typewriter-style to a simpler layout, such as the **Dvorak Simplified Layout** (developed by August Dvorak in the 1940s). User groups and online services have many keyboard variations available for downloading.

See Also
Keyboards; Keyboard Layouts; Mavis Beacon Teaches Typing

Keyboard Shortcuts

Key commands are **keyboard shortcuts** that can be much quicker than using the mouse for many tasks. If a keyboard shortcut is available for a command, the shortcut is usually listed to the right of the command in the **pull-down menus**, as shown in the figure. If, for example, you pull down the File menu at the Finder level, you see that the first listing, New Folder, has a shortcut listed to the right of it. The shortcut displayed is N.

The Macintosh uses a special key for most commands called the **Command key.** The Command key on your keyboard has an Apple logo imprinted on the key to the left of the Command symbol (). Many of these commands use the first letter of the command to make it easy to learn these key command shortcuts, such as N for New Folder, O for Open, P for Print, and S for Save. The following table lists the most common Macintosh shortcut commands.

Key Command Shortcuts

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Command	Key Sequence
Bypass Internal Drive	-Option-Shift-Delete
Cancel	-.
Close	-W
Close All	-Option-W
Close Active Window	-Option-Up Arrow
Collapse an Expanded Folder	⌘-Option-Left Arrow
Copy	-C
Cut	-X
Duplicate	-D
Delete locked files in Trash	Option-Empty Trash
Disable Trash Warning	Option-Empty Trash
Eject Disk	-E
Find	-F
Find Again	-G
Make Alias	-M

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New Folder	-N
Open	-O
Open a Folder or Disk	-Up Arrow
Paste	-V
Print	-P
Put Away	-Y
Rebuild the Desktop	Option-Command (during startup)
Restart	Control-⌘-PowerOn key
Save	-S
Screen shot of Desktop	Shift-⌘-3
Select All	-A
Toggle Keyboard layouts	-⌘-Spacebar
Undo	-Z
Zap Pram	-Option-P-R (during startup)

Some applications have so many shortcuts that they run out of combinations using the Command key. Often other keys, such as the **Control key**, the **Option key**, and the **Shift key**, are added for shortcuts.

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To find a key command shortcut, follow these steps:

1. Click and hold the pull-down menu of the command.

2. Visually locate the name of the command, and then look to the right of the name and see whether a keyboard shortcut exists. If it does, it is listed there, using a symbol, or multiple symbols, followed by a one letter code.

3. In System 7.0 and 7.1, you can find a list of key commands in the Help menu under Finder Shortcuts. In System 7.5 and higher, these Finder shortcuts have been relocated into the Apple Guide, which is also found under the Help menu.

See Also
Control Key; Keyboard Shortcuts; Option Key; Pull-Down Menus; Shift Key

Kid Desk

If there's just one must-have program for any family with kids and a computer, it's KidPix. If there's a second, it's this one.

Kid Desk is a special desktop just for kids that gives kids access to the programs they use, but keeps them from getting into the grown-up's files. The desktop itself is designed to be kid-friendly. It's got desk accessories, just like the grown-up ones, including a name plate, a clock, calculator, calendar, and a frame for a picture.

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And it has others that would be helpful on any desk. There's "electronic mail" and "voice mail" (provided your Mac has a microphone). You can leave notes for your kids, and they can respond. Notes can be printed out on colorful letterhead, too. If they're not yet reading by themselves, leave a voice message. Clicking the analog clock gives you a digital clock which even speaks the time, helping the child to learn to tell time.

Kids can choose any of six different kinds of desks. There's one with a dinosaur theme, a high-tech space-age console, a Wild West desk complete with a Wanted poster, and three that are more traditional.

You can customize the desktop so that younger kids have fewer desk accessories, and older kids have the full set. Password protection keeps the kids away from the adult Finder. Because each child has his or her own desk, you can give your older child access to programs that a younger sibling isn't ready to use. You can also set up Kid Desk as the startup application, giving kids more flexibility in their computer use. And you can determine whether quitting Kid Desk exits to the Finder or shuts down the Mac. Obviously, the latter is safer if you're concerned about hard disk security. If yours is a "family" computer, shared by kids and parents or by several siblings, Kid Desk may well save your sanity as well as your irreplaceable files.

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Kidmusic, A Little

See
A Little Kidmusic

KidPix Studio

KidPix was the first, and is still the best, graphics program for kids. Others, such as *Microsoft Artist* and *Aldus Art Explorer* have simply copied the tools and sounds that make KidPix so much fun, without making any major improvements on the original. KidPix was first developed by programmer Craig Hickman for his then three-year old son, Ben, and was originally released as shareware. Brøderbund bought the rights to it and has been distributing it, and various add-ons, since 1989. (Pretty soon, it will be putting Ben through college.)

It's a surprisingly powerful graphics program that, although geared to kids, has most of the tools that adult graphics programs have, plus a few that grown-ups never thought of. There are all sizes and shapes of brush, including some that drip, draw with barbed wire, bubbles, or toothpaste. There are rubber stamps with funny pictures, and there are hidden pictures to uncover. The erasers don't just erase, they explode, invert, cover the page with stripes, and do a dozen other unexpected things. There's an eggbeater to rearrange the screen, and a moving van to shift things around.

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Of course, there are sounds connected to all the tools, and you can record your own sounds, too. KidPix 2 is the current disk version, and KidPix Studio is an even more expanded CD-ROM version with much more stuff… more stamps, more pictures, more sounds, animated stamps, and the capability to make QuickTime movies and slide shows from your artwork. You can narrate the movies and add sound effects, too. The program menus are bilingual English/Spanish, and there's even a "small kids mode" to protect your checkbook and other files from accidental erasure by an inquisitive three year old. The program is rated for ages 3-12, but adults have been seen spending hours at a time playing with it.

KISS
See
Let's Keep It Simple Spreadsheet

Knockout
See
Color Trapping

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Kodak Color Management System
See
KCMS

Kodak DC40

A digital still camera that can produce full screen (756 x 504 pixel resolution) and quarter screen (378 x 256) images. Note that this size equals the standard size for the **PAL** video format, and is also a standard size for PhotoCD images. The camera holds 48 full screen images, although this number is reduced if you choose the option that enables you to delete the last picture taken without deleting the other images (a feature not available on any other camera in this price range).

The camera is long and flat, with a **range finder** view system. The built-in lens cover slides open by pushing a lever at the top of the case. The shutter release button is on the top of the camera. An LCD panel at the back of the camera displays information about the number of pictures, the flash, and other modes being used. Two toggle buttons adjust the camera; press the first to jump from option to option, press the second button to change the option. Options include: flash mode, self timer, and erase images.

Images are larger than the QuickTake, and the color quality in the images seems to be a little better. Exposure, particularly outside, tends to over

exposure more than on the other cameras. While the images are slightly larger (so that the camera supports the **PAL** video format which has a larger frame size than **NTSC**) this doesn't mean that the image is noticeably better than the other cameras.

See Also
Digital Still Cameras; Still Video Cameras

Kodak DC50

A repackaging of the **Chinon ES-3000** , this unit comes with different software and has a slightly higher resolution image: 756 x 504 instead of 640 x 480

See Also
Chinon ES-3000; Digital Still Camera; Dycam10-C;

Kodak PhotoCD

Perhaps the most elegant solution to scanning photos is to have someone else do the scanning for you. PhotoCD is a special file format for images developed by Kodak, and many vendors will take your undeveloped color film and return a compact disk full of high-quality digital images.

Basically, Kodak has developed a special network of new machines and

technology and traditional photo lab vendors to deliver high-quality scans at a moderate price. You give your film to a vendor that offers PhotoCD services, and your film is shipped to a special service bureau that bulk-scans your film on a high-end workstation. Although the process is automated, the results are comparable in quality to drum scans.

If you're not in a hurry, PhotoCD is a great solution. In the mid-90's, prices are about $1.50/frame for a roll of film, compared to the $25-$40 per image you'll pay for a drum scan. (You can also send individual negatives for inclusion on a PhotoCD, but the prices are slightly higher.) In larger cities, you may be able to find labs that offer a 24-hour turnaround on PhotoCDs, but in many places, you must wait as long as 7 to 10 days to get results.

See Also
Scanners

Koyn Fractal Studio

Koyn Fractal Studio is the place to start learning about digital scenery. It will give you the terminology and a theoretical and practical understanding of how fractal geometry works. Fractal geometry is the core of digital scenery software, as well as being what has been called the greatest scientific breakthrough since particle physics. Fractals possess what is called "self similarity", an attribute that makes small parts of an object look like duplications of the entire object. This means that no matter how "close" you

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zoom in on a fractalized object, it always seems that you are no closer than when you started. Like realizing the creative universe in a grain of mustard seed, fractals give computer programmers the needed tools for emulating the natural world. Fractal graphics have the feel of organic objects, and take on a life of their own.

Koyn's Fractal Studio, through its documentation and on-screen tutorials walks you through the magic of creating images with fractal tools and processes. What other scenery generators do in a hidden way, Koyn does in an articulated and expositive manner. Bushes, clouds, ferns, leaves, rock formations, and trees, all of these natural objects can be emulated and created with the fractal tools in Koyn. It's as if we have discovered in fractal geometry the building blocks of what we perceive as the natural world. Koyn's Fractal Studio allows us to watch as seemingly natural objects are created over time. As each calculation progresses, we get the feeling that we are watching a secret natural law unfolding.

For original creations, Koyn Fractal Studio lets the user set up a series of polygonal guides, each of which represents the way that fractal geometry will be applied to the screen. Exploration and experimentation is imperative in KFS. It takes a while to accumulate the necessary connection between what the geometric guiding polygons look like and what basic rendering can be expected.

A library of fractal shapes is included with the software, presenting an on-screen geometry of each fractal formula. Interacting at the visual level,

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these structures can be rotated and resized. Accessing the "render" command from the menu bar, the geometric shapes begin to develop into fractal natural objects on screen. Clouds fill a blue background, trees grow and branch out, and leaves start their journey towards veined masterpieces. Most renders should be terminated after only a few iterations (a few seconds) if you plan to use the graphics in other designs. That's because as each iteration commences, the branching gets thicker and more detailed. Unless you are able to set the resolution very high (you have to have a lot of RAM for this), just a few renderings will produce very pleasing graphics. You can set the color of the images, or select "randomize color" for a rainbow effect. KFS allows you to save the geometric guide screens for further exploration and rendering, and the resultant graphics as PICT files.

KPCMS

Used as the system-level **color management** software for Microsoft Windows 95, KPCMS also works on the Mac, using supplied **device profiles** to improve the quality of color images output from Macs. Photoshop includes KCMS for importing Kodak's PhotoCD images, and DayStar Digital's ColorMatch software uses KCMS for system-wide color management. Color adjustment information is embedded in image files, so that the files can be output from any computer, whether the user has KCMS or not. The Input Color Characterization software enables users to create their own scanner profiles.

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KPT Final Effects

A set of **plug-in** filters, effects, and transitions for Adobe **After Effects**, KPT Final Effects claims to produce film-quality effects that fall into eight categories: distortion, channel, image control, light, particle, perspective, stylize, and transition. The effects can be animated over time by adjusting various parameters.

MetaTools
Price: $695
Email: metasales@aol.com
Phone: (805) 566-6200
Web: http://www.metatools.com/bryce/bryce.html