

The world's busiest commercial studio

Wal-Mart's new in-house photography center is as ambitious an undertaking as Wal-Mart itself

Can you imagine taking on all the commercial photography for the world's largest seller of dog food? How about doing all the shooting for the world's biggest retailer of photographic film? Or what if a client asked you to provide high-res image files for all the signage in its 4,600 worldwide stores? Do you think you could handle the pressure of producing a marketing publication with a target distribution of, say, every home in America?

What if all of this came from one client?

These are the kinds of tasks the Wal-Mart studio group has to deal with on a daily basis. Led by Wal-Mart's Creative Director of Photography Matt Austad, the new Wal-Mart in-house commercial studio is an ambitious undertaking designed to bring all of Wal-Mart's extensive commercial image production under one roof.

"One day, I asked, 'Why isn't this stuff in house?'" Austad recalls. "Everything else that Wal-Mart has done, they've done on their own, but they were paying agencies to handle all their photography. We figured the money they were spending with all those agencies would fund an in-house department."

But this is no casual endeavor. Wal-Mart recently replaced Exxon Mobil as the world's biggest company, and some projections have the 41-year-old retailer doubling its size within the next five years. Wal-Mart's \$240 billion-plus in sales dwarfs the GDP of many countries. In fact, it sold more in one day last fall—about \$1.42 billion—than the total GDP of 36 different nations. Vendors are so keen to get a piece of this enormous pie that many have set up satellite offices adjacent to Wal-Mart's Bentonville, Ark., corporate headquarters, collectively forming an area called "Vendorville," where scores of corporate emissaries eagerly wait in line for that next big Wal-Mart contract. Yep, it's big business. Real big.

"The workload is going to be huge," says senior photographer Joey Peña. "We will do everything from the signage to corporate portraits, circulars, catalogs, images for Wal-Mart.com and [Wal-Mart subsidiary] SamsClub.com, packaging photography, grand opening mailers and publications put out by Wal-Mart and Sam's Club. And then the marketing team comes in with next



year's target products for big sellers, and we'll put together a montage for them. We'll have plenty to keep us busy."

By mid-summer, the Wal-Mart studio will move from its current space into a new 23,000-sq.-foot facility that will incorporate a full kitchen, several photo bays for product shoots and a complete shop for building set parts. Between now and next February, the studio staff will grow to 23 people, including three photographers, three junior photographers, two photographic assistants, stylists, set constructors and project coordinators. A post-capture production team will do Photoshop work and format the large RAW image files while an art director lays out jobs with low-res copies.

Digital capture, of course, will be a lynchpin in the new studio's workflow. Anchoring the capture system will be the Sinarback 54 and 43 digital camera backs, used primarily with the Sinar p3 camera system. "We went with Sinar for dependability," says Austad. "I felt the software gave us the greatest control and most efficient workflow. My concern was not only the creative aspect but having an image that was production

ready. I love the way we can calibrate and create profiles in the software. Joey loves the chip size [the Sinar system is capable of producing files for Wal-Mart's 9-foot-wide store signs] and its ability to handle lighting effects. For example, if you let an area fall off to 'paper white' on smaller chips, you would get blooming. The 54 handles the highlights extremely well, and with the actively cooled chip, it minimizes noise in the shadows."

Because it will form one cohesive entity, the new Wal-Mart studio will be capable of a creative freedom that was lacking with all the different agencies handling different parts of the Wal-Mart account. "We will be able to expand on the creativity for Wal-Mart since [working in-house] it won't cost nearly as much to experiment and try new ideas," says Austad. Adds Peña: "Wal-Mart has its own creative team. They'll give us a starting point. We will expand on that, work with different angles, different styles of lighting. It's an exciting opportunity for us and for Wal-Mart."

—Jeff Kent, contributing editor

Design Tools

TIPS

Photoshop adjustment dialog tricks

When in an Adobe Photoshop image adjustment dialog box such as Levels or Curves, many people think they don't have access to things outside the box. Here are not-so-obvious things you can do while adjusting your images:

Hold the spacebar any time you want to use the Hand tool to scroll around your image. Add the command/control key to get the Zoom tool and click, or click and drag to zoom in on your image. Add the option/alt key to zoom out. I prefer to type one of the following keyboard commands:

cmd/ctrl+= Zoom in
cmd/ctrl-- = Zoom out
cmd/ctrl-0 = Fit on screen
opt/alt-cmd/ctrl-0 = 100% view

Add opt/alt to the top two commands to prevent the window that contains your image from changing size when you zoom.

Type cmd/ctrl-H to hide any guides or selection edges and use cmd/ctrl-; to hide guides but not selection edges. Type cmd/ctrl-R to show or hide the rulers. Open or close any palette by choosing its name from the Window menu. Change the measurement system the Info palette uses (RGB, HSB, CMYK, etc.) by clicking on the Eyedropper icon within that palette.

If you turn on the caps lock key, your cursor will

look like a crosshair whenever it's on top of your image. You can add a Color Sampler (with corresponding readout in the Info palette) by holding shift and clicking within your image, or shift-opt/alt-click to remove a Color Sampler that's already on your image.

If you're working on an image that is in RGB mode, but you plan on converting it to CMYK mode, you type cmd/ctrl-Y to turn on the Proof Colors feature. With default settings, that feature will show what your image would look like if it were converted into CMYK mode. And if you can't quite tell which areas of the image are shifting when you toggle Proof Colors on and off, try typing shift-cmd/ctrl-Y and Photoshop will cover all the areas that will shift with gray.

—Ben Willmore, www.digitalmastery.com

Your scanner's sweet spot

You can find your flatbed scanner's "sweet spot" by scanning a solid white piece of paper in RGB mode into Photoshop at 100 ppi. Use Photoshop's Equalize command (Image>Adjust>Equalize). Bad spots in your scanning area will appear with gray or black patterns as you drag the slider to the right. Use other areas of the scanning bed for important artwork.

Use filters on 16-bit images

For critical color in Photoshop 6.0 or 7.0, you can work with images with more color depth than the standard 8 bits per channel (for an RGB file this is called "24-bit color" or "millions of colors"). Not only do many of the Image>Adjust commands used

for color correction work on 16-bit images, but most of the workhorse filters—Unsharp Mask, Gaussian Blur, Add Noise, Median, and Dust & Scratches—can also be applied.

—Linnea Dayton & Jack Davis,
The Photoshop Wow! Book, Peachpit Press

NEWS

Photoshop 8 features

Rumors of new features for Photoshop 8.0 include new features for video and digital photography, including NTSC, PAL and HD previews and support for non-square pixels; text on a path; nested layer sets; a Histogram palette; and new "filter layers" that allow you to apply filters nondestructively. It should ship by the end of the year and is rumored to run on Mac OS X 10.2, but not Mac OS 9.

—PC Graphics Report, February 2003

Power supply exchange fixes noisy G4s

Apple is now offering a fix for the unacceptable noise level of Apple's Power Mac G4 (Mirrored Drive Doors) in the form of the Power Mac G4 Power Supply Exchange Program, which sends a replacement power supply, fan, allen key and instructions for a shipping and handling fee of \$19.95. The kits may take 4-6 weeks to be delivered. The program ends June 30, 2003. Details are at <http://depot.info.apple.com/generic/index.html>. For more on this issue, see www.g4noise.com.

—Jay Nelson, Editor & Publisher,
Design Tools Monthly, www.design-tools.com

Talking to the pictures

Letting the computer sort your images

One of the most tedious tasks for a prolific photographer is keeping images organized. It's not unusual for a stock photographer using film to shoot hundreds of rolls for one assignment. Photographers shooting digitally tend to shoot even more, since there's no need to worry about film or processing costs. That means having to organize and categorize thousands, even tens of thousands of pictures per month.

Photographers who haven't kept up with sorting their images have it even harder. Even discounting similar shots, discards and photographs that don't have resale value, titling and key-wording that many images can take an extremely long time. Wouldn't it be nice if there were a way for a computer to handle the entire process automatically?

That's not possible quite yet, but it may not be too far off, if Professor James Z. Wang of Pennsylvania State University has his way. He's working on a process called Automatic Linguistic Indexing of Pictures (ALIP), which trains computers to recognize

and categorize objects within digital images.

Wang, who is with Penn State's School of Information Sciences and Technology and the Department of Computer Science and Engineering, developed content-based image retrieval technology while at Stanford University in the mid-1990s. With it, computers were trained to find shots in image databases that were similar to the photos that users selected. That technology is now being licensed commercially.

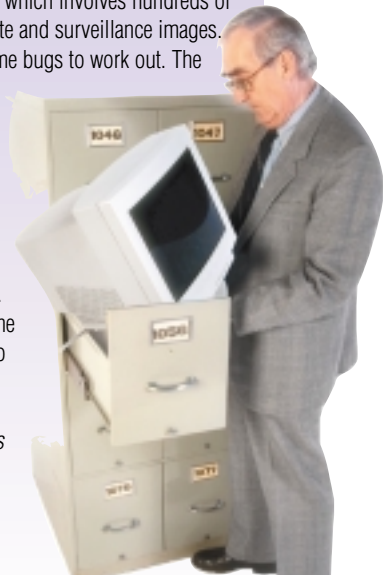
He started working on this project when he joined Penn State. Using 4,600 images that were part of the Corel image libraries for prototype testing, Wang and his team trained the computer to recognize over 600 image concepts, each with about 40 training images. In a recent test, the computer was able to come up with the perfect set of keywords for 10 percent of the new set of images, which were primarily travel shots. That doesn't sound all that high, but it's actually quite remarkable, Wang said, considering the complexities involved in computerized visual recognition. A much larger percentage had at least some correct keywords.

It should take a few more years before a limited working version of ALIP is ready to go. Once the

process has been refined, it should be extremely helpful in going through large numbers photographs quickly, in a wide variety of fields. "The system is very generic; it can be trained to recognize many different types of images, including medical and scientific. It's just like information retrieval with documents. There are many ways to use it," Wang said. One of the areas where this technology is expected to be extremely useful is Homeland Security, which involves hundreds of thousands of satellite and surveillance images.

There are still some bugs to work out. The computer might be able to tell that there's a beach, but it has a hard time distinguishing the beaches of the Caribbean from the shoreline of Hawaii. But then, so do some of the clerks who do the keywording at stock agencies.

—Ron Eggers



“Do not rely on Photoshop filters. Anybody can do Photoshop filters. I myself work with Photoshop filters all the time, but that isn't what makes it my work. You cannot just run a filter and proclaim that art. A filter in and of itself is only technology to enable the ultimate expression. It itself is not art; it is just a bunch of math. It is useful but not final. You need to take it a lot further.”

—Jeff Schewe, digital imaging expert and 2002 judge of the Canon Digital Creators Contest.

To enter the 2003 competition (entries accepted March 24 through September 4, 2003), go to www.canon.com/cdcc for more information.

Deconstructing: Smashing Pumpkins, final tour

Mirko Ilic, of New York City, created this image (below) for a 2001 *Rolling Stone* article on the Smashing Pumpkins' final tour (www.mirkoilic.com). In Ilic's imagination, after a decade of spilling his guts in the lyrics of his songs, lead singer Billy Corgan's future is open and unknowable.

Rolling Stone provided a black and white shot of Corgan, and the desert in the background is

a Corel stock image, but the rest is pure Ilic.

He and coworker Lauren DeNapoli built the stage curtains in Alias|Wavefront Maya 3D animation and effects software, juxtaposing the vivid red of the drapes against the black-and-white image to heighten the drama of the composition. Corgan's gown was created in Maya as well, with a silver texture map and paint effects. The rendered elements,

stock image, and image of Corgan were combined and prepped for print in Adobe Photoshop.

"This piece got quite a few awards, and I had to output it on high quality paper to be framed for various shows," says Ilic, who delivers work chiefly in digital format. When subjects, authors and others request art prints of the work, he outputs it on an Epson Stylus Color 3000.

When Mirko Ilic immigrated to New York from Yugoslavia-Croatia in 1986, he hit the ground running. Among the first friends he made was seminal designer Milton—I [heart] NY—Glaser, who was impressed by Ilic's artwork, and equally bemused at the jumble it was in. "I didn't know what a portfolio should look like," says Ilic.

Glaser offered him the use of a table in his own studio to sort it all out, and now, years later, Ilic leases space from Glaser on the floor above the designer's 32nd Street studio.

And because Ilic "didn't care for rules," he simply went knocking on doors when he arrived, landing a cover for *Time* magazine as his first assignment in America and later becoming the magazine's art director. He was also the art director of the *New York Times* op-ed pages. Ilic's won several prestigious awards, including a gold award from the Society of Publishing Designers, and he collaborated with Steven Heller on the successful book "Genius Moves: 100 Icons of Graphic Design" (Thames and Hudson, originally published by Northern Lights).

When we spoke with Ilic recently, he was working on illustrations for *Men's Health Magazine* and *National Geographic*, designing a brand identity for a New York restaurant, and working on a second book with Steven Heller, "Graphic Scrawl," to be published by Thames and Hudson. Ilic's pro bono work for nonprofit organizations is ongoing.

—Leslie Hunt

©Mirko Ilic Corp.



GEAR BOX

Alias|Wavefront Maya 3D animation and effects software, running on a Silicon Graphics Octane workstation

Adobe Photoshop on a 667MHz Apple Power Mac G4 (512MB RAM, 60GB hard drive)

Epson Expression 1680 scanner

Epson Stylus Color 3000 inkjet printer

"For making my sketches," says Mirko Ilic, "I use the Sharpie .1 fine marker."



All images ©Vincent Versace



STUFF I LIKE

Name: Vincent Versace

Business: Versace Digital Natural Light Photography, Los Angeles

Specialty: Digital natural light photography

Web site: www.versacephotography.com

Notable clients: Nikon, William Morris Agency, Mosaic Media, San Francisco Presidio

What's the product you're going out of your way to find excuses to use?

There are two, the Wacom Cintiq interactive pen display and my Epson Stylus Pro 9600 wide-format inkjet printer. Using the Cintiq is a gas and there's nothing like seeing a large-format print.

What's the next product you've got your eye on?

The 60GB Fortress portable hard drive. It can withstand being dropped from six feet onto concrete.

What's the one piece of gear they'd have to pry out of your cold, dead fingers?

Again, there are two. My Nikon D1X digital SLR and my Sony Artisan monitor. Both are how I see the world.

You CAN take it with you

Portable hard drives are getting tougher and smarter

By Bryan Linden

It takes a licking...

To a photographer or graphic artist working with digital files in the field, there is no greater fear than losing data. Two new storage products on the market bring helpful features to today's imaging professionals. A mobile bus-powered hard drive storage solution from **FORTRESS CORP.** gives users extreme shock



The Fortress storage solution can survive a 6-foot drop on to concrete.

protection in a FireWire/USB 2.0 enclosure that can survive a 6-foot drop onto concrete with no data loss (www.4tress.com). **MAXTOR's** 5000DV external FireWire/USB2 hard drive makes backing up your files a breeze with a button on the front that automatically initiates a backup (www.maxtor.com).

A loss of original images due to physical shock could be catastrophic and that's where the **FORTRESS** drive comes in. This portable unit is the ultimate for protecting data and can prevent disaster during transport and storage. Other mobile units can be damaged by slight jarring and drops, which are commonplace when traveling or in the field. Unfortunately, it's something I've experienced first hand. I've worked with the Fortress drive for several weeks and taken it on the road to several shows and shoots where I've intentionally dropped the drive close to 50 times—many of those instances on concrete—all without any problems or loss of data.



The Maxtor 5000 series features backup with the push of a button.

Fortress drives, machined from a solid billet of Nickel-Plated Aerospace Alloy, employ a patented shock suspension system and nonskid pads that also dampen noise. The drives are pricier than other mobile solutions but provide protection no other hard drive can. All necessary cables and an external power adapter are included as well as Nti Backup NOW! for the Windows OS and FWB BackUp Toolkit for Macintosh. There's a lifetime warranty on the enclosure and a three-year warranty on the mechanism and electronics. Compatibility: Windows/Macintosh/Linux. List price: 20GB, \$499; 40GB \$599; 60GB \$699.

Making backup a breeze

Taking a cue from leading scanner manufacturers, Maxtor Corp. has adapted the one-touch scanning button technology for one-touch backup on its Maxtor 5000 series drives. A push of the button initiates a backup script that's automatically set up during the installation procedure. This is very handy, as most people don't remember to perform regular backups and the button is a visual cue. Easy setup and flexible software should lead to a no-excuses backup system. A slightly modified version of Dantz Retrospect Express for Macintosh and Windows (to work with OneTouch) is included. The drives can also be set up to automatically run backups on a specified schedule.

The 5000DV drive serves as a standard external FireWire/USB2 hard drive. Available with 160GB- or 200GB-capacity, the drives feature an Oxford 911 chipset, 7200RPM drives with 8MB cache, and stackable cases that can also be mounted vertically with the included stand. All necessary cables and an external power adapter are included. Compatibility: Windows/Macintosh. List prices are comparable to other external drives that do not include backup features and software: 160GB, \$299; 200GB, \$399; one-year warranty.

Bryan Linden has been capturing digitally since 1993. His company, Linden Photography, shoots entertainment, sports, music, commercial and fine art. You can visit his Web site, www.lindenphoto.net.

I got Cool, babe

Only in Vegas! A Cher look-a-like presented *PEI's* Cool² award winners with their plaques at PMA's show in February.

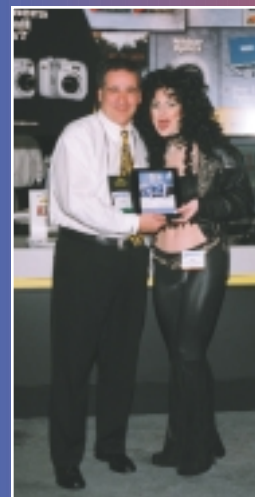


Epson garnered the most awards of all the 2002 entrants with six Cool2s.

Karen Smith-Pilkington, president of Kodak's Professional Division, accepts for the DCS Pro Back 645 and the DCS Pro 14n.



Bill Pekala, Nikon's digital product manager, accepting for the Nikon Coolpix 5700, which tied with the Canon PowerShot G3 in the consumer digital category.



Special thanks to Jim Cheyne and Pro Photo Lab based in Lakeland, Fla. And big kudos to our talented photographer, Serene Wright, M.PhotoG., Alternative Imagery by Serene, based in Las Vegas.

The latest scanners

Affordable scanners with high-quality files

By Thomas White

A variety of new dedicated film scanners and flatbed scanners with transparency adapters offer the ability to create high-quality digital files. The performance of many of these models surpasses that of the best professional models of only a few years ago.

MINOLTA'S DiMAGE Scan Dual III dedicated film scanner handles both 35mm and Advanced Photo System (APS) format film. It yields resolution of 2,820 ppi at a D-max of 4.8, and can make 48-bit scans into user-selected color spaces. Multi-pass scanning helps to eliminate random noise in the finished scans. The Scan Dual III has a Point Autofocus feature to allow the user to simply click on an area of the image to determine focus (USB 2.0 interface). MSRP: \$449.



The **EPSON PERFECTION 3200** flatbed scanner features the highest resolution of any Epson scanner, 3,200x6,400 ppi. It has a 4x9-inch transparency adaptor built into the scanner lid. The scanner's 3.4 D-max is high enough to provide quality 48-bit scans from both color negative and slide film.

The scanner is available in two models, both with USB 2.0 and FireWire interfaces to make connections easy and fast. The Perfection 3200 Photo includes LaserSoft SilverFast SE 6 software, Adobe Photoshop



Elements 2.0, and EPSON Smart Panel and scanning software. MSRP: \$399. The Perfection 3200 Pro adds the full version of SilverFast Ai 6, Monaco EZcolor 2.5, and ArcSoft PhotoStudio, PhotoBase, and Panorama Maker utilities. MSRP: \$599.

From Denmark, the **IMAICON FLEXTIGHT 343** film scanner has Imacon's innovative "virtual drum"



film mounting system, which holds the film flat for the sharpest scans possible without the hassle of oil mounting. The Flextight 343 scans a wide range of film formats, from 35mm to 6x18cm. It has maximum resolution of 3,200 ppi and a D-max of 4.3 with 48-bit color. The Flextight scanner includes Imacon's powerful FlexColor software, which does a good job of scanning both positive and negative film with a professional range of user controls and presets for color correction and sharpening (includes FireWire interface). MSRP: \$4,995.

The **AZTEK PLATEAU** professional flatbed scanner uses X-Y axis scanning and three independent lenses to capture 48-bit color over a 14x18-inch scan area. With an extremely high optical resolution of 16,000 ppi, the scanner boasts a



scanning capture speed of 16MB per second.

Aztek specifies this model's D-max value at 4.8, way over the "industry standard" of other manufacturers. The Plateau uses Aztek's Digital PhotoLab software, which offers a density-calibrated ICC-compatible workflow. Digital PhotoLab is remarkably effective at scanning color negative films—a struggle for many scanner programs—with excellent results on even poorly exposed slide film. MSRP: \$18,990.

SMART TIP

If you've ever performed color correction on your images and later noticed that the contrast changed too much, you might want to try this technique. Immediately after color correcting your image, choose Edit>Fade and set the popup menu to Color. This prevents the last adjustment you made from changing the brightness or contrast. If you used an adjustment layer, do the same thing by setting the blending mode menu at the top of the Layers palette to Color.

—Ben Willmore,
www.digitalmastery.com

Scanners demystified

In the last few years scanning technology has matured to the extent that some of us take it for granted. But there are still practical issues you need to understand before choosing the best scanner for your needs.

Configuration. There are two basic configurations and one variation: CCD scanners (flatbeds and most film scanners) and drum scanners, which use vertical or horizontal photomultiplier tubes (PMT). Scanners such as like Imacon's are hybrids—CCD scanners in which the film is held in an arc, similar to a drum scanner design.

Opinions vary, but some still believe that the PMT technology of drum scanners produces the highest scan quality. In PMT scanners, a focused light source (such as a pulsed xenon light) passes through a series of optics to a fixed point on the rotating drum.

These scanners' exceptional optical resolution, high bit depth and dynamic range have always been a selling point. But the latest desktop scanners are challenging drum scanner technology, by presenting comparable features of their own. Glassless carriers like the Microtek 1800f eliminate light diffraction, loss of sharpness and Newton rings. Glass carrier designs as in the Epson Perfection 3200 Pro and Expression 1680 Professional scanners are just as sharp.

Sensors and dynamic range. Dynamic range, the sensor's ability to resolve a contrast



The 2003 Pulitzer Prize in Feature Photography was awarded to Don Bartletti of the Los Angeles Times for his portrayal of Central American youths who, often facing deadly danger, travel north to the United States. Bartletti used two Nikon F-100 film bodies and two zoom lenses: a 20-35mm and an 80-200mm. He had the cameras and a strobe and about 30 rolls of film in a backpack so he could run, crawl, climb ladders and jump from car to car on the moving trains. "When I captured this image, I had been riding the train for about 12 hours," says Bartletti. "At dawn I climbed to the top as the locomotive far ahead disappeared into a solid wall of fog. A lone boy was sitting a couple cars ahead. I ran over the tops of the cars and made a few frames just before we hit the fog. Because of the noise, I don't think the boy even realized I was there. I feel the photograph is a metaphor for the entire migratory route. A lone child, an uncertain future ahead."

ratio, is measured by two standards, density and bits (the amount of tonal data) per pixel. Minimal quality scanning of continuous tone images requires at least 8 bits per pixel. Sensors that capture more than 8 bits per pixel yield more accurate color. A gamma-corrected, calibrated scanner that captures 10 bits per channel can resolve 1,024 shades in each color channel, mapped to 256 discrete values. A 12-bit scanner maps 4,096 shades for each color channel to 256 values.

Dynamic range is often defined in terms of optical density. Density (D) is the degree of opacity of a transparent or reflected image. Density range is the range of tones in an image, from the lightest (D-min) to the darkest (D-max). D-max minus D-min equals density range; e.g., $3.20D - 0.10D = 3.10D$.

Because photographic transparencies rarely have a density range greater than 3.3, and reflective prints rarely have shadow density greater than 2.25, you *could* say that it's unnecessary for a scanner sensor to identify density greater than 3.5.

Dynamic range. Unfortunately, scanner manufacturers do not follow a standardized method for measuring dynamic range. Different kinds of density measurement targets contribute to differing results. Whose method or target is correct? Often referred to as "a rubber ruler," this means that you can't use the manufacturers' stated density range to compare models.

I took it upon myself to test a few scanners to see how the actual dynamic range compared to the manufacturers' claims. I tested an Epson 1680 Professional FireWire scanner, an Epson Perfection 3200 Pro, and a Microtek ArtixScan 1800f. In each

case, the makers' claims were more ambitious than my findings. Some scanners offer a multiscan option to reduce shadow noise by averaging the results of several scans. In my tests, these scanners gained a half- to full-stop range.

Resolution. We all know scanner resolution is the number of pixels it can capture per inch. A number of formulas can help you determine if a scanner can provide adequate native optical resolution for image enlargement.

You need to know: the dimensions of the print or film original; the resolution required for the final print; and the scanner's maximum, uninterpolated optical resolution.

Multiply the size of the film original by the optical resolution, then divide the result by the image resolution. This gives you the maximum print size. For example, if the original image is 1.5 inches (35mm), and the scanner's maximum optical resolution is 3,200 ppi, and you need resolution of 200 ppi for your final print, then 24 inches is the largest print you can make at 200 ppi with the scanner's native resolution of 4,800 ppi:

$$1.5 \times 3,200 \text{ ppi} = 4,800 / 200 = 24$$

Scanning bit depth vs. high-bit editing. Most scanners can capture 10, 12, 14 or 16 bits per channel. Scanners that use high-bit-depth sensors achieve better shadow separation, smoother tonal gradients and greater color accuracy. Usually, the scanner's internal software decides which are the best 8 bits of information to use and discards the rest, but some scanners can also save the high-bit data. It's a misconception that the more bits are

saved per channel, the better the scans. For example, if a 48-bit scanner delivers 16 bits per channel, you might assume this 16-bit scan will be of greater quality than the same image scanned at 12 bits on a 36-bit scanner. But in my experience, you'd be hardpressed to visually distinguish a difference between 36-, 42- and 48-bit scan.

Software. The most important factor in getting the most from the scanner hardware is the software. It's the defining factor among models with comparable hardware specifications.

Scanner software should at least have curves and levels adjustments available, and ideally, highlight and shadow samplers for targeting contrast range, and an info palette. Also look for the ability for selective color correction using an LCH color model, which allows easy adjustments via lightness (grayscale), chroma (saturation), and hue (tint) values, rather than RGB numbers.

In researching scanners, you'll quickly find plenty that have similar specifications. I recommend trying out the vendor software for ease of use. Check out third-party software like LaserSoft Imaging SilverFast for more advanced control. If you're torn between two scanners from different makers, take along a range of your typical film or prints when you go to the dealer, and get a demonstration. Check out the scanning speed, ease of operation, functionality of the tools, and the quality of the scans.

Having the best equipment does not guarantee the best results. Training and support services from a local dealer help in realizing the full potential of your purchase.

—By Dan Reid with Jim Rich contributing