

ColorNews Issue#27

May 22, 2007 2:47:41 AM PDT

Welcome to ColorNews, a periodic update on things related to Color Management.

We strive for a periodic newsletter of high value to our customers.

Please let us know your interests so we can address these concerns in future issues.

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CHROMiX COLORNEWS

Issue # 27
May 22, 2007

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SHOWS & EVENTS

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June 5th - 7th, 2007, IPA Technical Conference, Westin O'Hare, Rosemont, Illinois.

The 2007 IPA Technical Conference offers attendees comprehensive information regarding production capabilities and efficiencies required to successfully operate a total graphics workflow. Steve Upton from CHROMiX will be there in the Color Management Group booth showing previews of Maxwell and the upcoming

IDEALink Verify (more below)

<<http://www.ipa.org/knowledge/conferences/tech2007/index.php>>

June 6th -9th, 2007, IPMA 2007, Renaissance Oklahoma City Convention Center, Oklahoma City, OK.

Join other in-house professionals at the In-Plant Printing and Mailing Association (IPMA) Conference.

<<http://www.ipma.org/ipma2007.html>>

September 9th - 12th, 2007, GraphEXPO and Converting Expo 2007 USA, Chicago, IL. Regarded as the USA's most comprehensive prepress, printing, converting, and digital equipment trade show and conference, it is estimated that over 40,000 industry professionals will attend this event. CHROMiX will be there. Stay tuned for more information.

<<http://www.gasc.org>>

October 24th - 27th, 2007, SGIA 2007, The Specialty Printing & Imaging Technology Expo, Orange County Convention Center, Orlando, FL.

<<http://www.sgia.org/events/current%5Fexpo/SGIA07/>>

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CHROMiX News

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Maxwell, the revolutionary color management system we've been talking about for a couple of months, is nearly ready to launch! The next date and time for a free look (via WebEx) is May 31st, 2007, at 10:00 am Pacific Std Time (1:00 PM for EST). For those who express interest in this webinar, you will receive an email with the confirming date and connection information. If you haven't signed up yet, send an email to us at <<mailto:maxwellintro@chromix.com>> or give us a call at (206) 985-9844.

The next ColorThink Pro Webinar Training session will be held June 14th at 11:00 AM Pacific Std Time (2:00 PM EST). The WebEx class, which consists of one two-hour session and one one-hour session, is taught by Steve Upton, designer and developer of ColorThink. The first two hours cover fundamental and intermediate use, and touch on some advanced concepts. The second session, held at a later date agreed upon by class attendees, focuses on advanced concepts and questions. The class is presented in this manner to allow plenty of hands-on time with the program before the final hour of training. Interested? All

you need is a current browser, and ColorThink Pro. Pricing: \$349 for the Webinar class, \$598 if you need an upgrade from ColorThink to ColorThink Pro and \$748 if you are starting from scratch (no upgrade) for the training and the whole ColorThink Pro program. For more information or to register, call sales at 866-CHROMiX x1, or email <mailto:sales@chromix.com>

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 | A D V E R T I S E M E N T

| EIZO LCD Monitor Instant REBATE Promotion
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Eizo Model	Price before Rebate	Rebate Amount
FlexScan L-997	\$1749	\$100
ColorEdge CE-210W	\$1179	\$30
ColorEdge CE-240W	\$1679	\$50
ColorEdge CG-19	\$1499	\$100
ColorEdge *CG-210-BK	\$2650	\$250
ColorEdge CG-211	\$2850	\$250
ColorEdge CG-221	\$4999	\$100

| \$0 Shipping

| HURRY, OFFER EXPIRES JUNE 30, 2007

| All models include FREE Shipping to US customers.
 | The Instant Rebate is enacted once you add the monitor to your cart.
 | *CG-210 is available only in Black and only while supplies last.

| For more details, or to purchase, link to:

| <<http://www.chromix.com/colorgear/shop/manufacturedetail.cxxsa?contribid=11656&pid=1.cn27>>

| or Call ColorGear Sales 866-CHROMiX x1,
 | or email <mailto:sales@chromix.com> for more information.

| Remember, NO state taxes are charged outside of Washington state!!
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Color, Product & Industry News

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Integrated Color Solutions (ICS) introduced the newest version of its award-winning Remote Director software. Remote Director 3.5 incorporates a number of new features and capabilities, all designed to improve the virtual proofing process and make it possible for users to meet their clients' demanding deadlines. The features include: Spectral blending, N-color and Spot Only image support, Monitor uniformity mapping, Virtual 10-bit, Multi-language support and System certification.

In the March 2007 Digital Graphics Magazine, Rich Adams discusses color management utilities, including our very own ColorThink Pro. Check it out....
<http://dgmag.texterity.com/dgmag/200703/?pg=54&search=color%20management&per_page=5&results_page=1&search_type=2&doc_id=-1>

Xerox filed for a patent for an innovative new technology for verbally adjusting colors called 'Natural Language Color Editing'. This technology may make it easier for a non-expert to adjust device color in a simple manner. Check it out:
<http://www.xerox.com/innovation/simple_color.shtml>

Apple has updated Aperture, it's all-in-one RAW workflow tool for Mac, to Aperture v1.5.3. This new version addresses issues related to overall reliability and performance in a number of areas, including: generation of thumbnails for adjusted images, entering and exiting Full Screen mode, working with large sets of keywords in the Keywords HUD, restoring from a vault, and more. Among the specific issues that have been addressed: previews now update properly when images are sent to an external editor; Leaf Aptus 22 and Aptus 75 images are now imported with the correct orientation; when folders are imported as projects, the folder structure is now correctly preserved when identically named subfolders are included in the hierarchy; reconnecting referenced images that have been externally edited now works more reliably; and setting the ColorSync profile in the Aperture Print dialog now correctly suppresses color management settings in the Mac OS X Print dialog.

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NEW POSSIBLE SECTION - - - CHROMiX requests your feedback

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We have heard many very funny, and enlightening, stories from people using color management over the years. Wouldn't it be fun to have one of these humorous stories (from you!) in each issue of ColorNews?

If you have a funny or light-hearted story, with color management at the core, that you would like to share, please send it to <mailto:stories@chromix.com>. CHROMIX will select and publish submitted stories in each issue of ColorNews. CHROMiX reserves full editing rights upon submission.

If there's no interest in this idea, no problem. Or, if you have another idea for ColorNews, please let us know at <mailto:hatmaker@chromix.com>

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I A D V E R T I S E M E N T - - - Upgrade to ProfileMaker v5 and save \$500!

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| If you own Eye-One Design, Photo, Proof or XT CHROMiX will take \$500
| off our already discounted prices of ProfileMaker v5 Publish and Photostudio.
|

| Profilemaker v5 List CHROMiX Price after \$500
| Version PriceWeb PriceUpgrade Discount

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|
| Photostudio \$ 2495 \$ 2195 \$ 1695 Wow!
| Publish \$ 2995 \$ 2695 \$ 2195
|

| If you have been wanting more advanced profiling or editing capability than what

| Eye-One Match provides, this is a great opportunity to get into the high-end.
| ProfileMaker is considered the #1 profiling package in the world.
|

| *Proof of Purchase and Eye-One Pro serial number required. Expires June 30, 2007
|

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| Call ColorGear Sales 866-CHROMiX x1 or email <sales@chromix.com> for more information

| for the above Monaco Optix XR Pro* Only
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This Month's Feature Article: Monitors

by CHROMiX's Pat Herald

LCD Monitors and Video cards

In recent years, most of us have been making the switch from CRT monitors to LCD either by choice or necessity. As our old CRT wore out and we went to replace it, we were surprised to find that some of our favorite CRT's are not being made anymore.

Seemingly overnight these venerable CRT workhorses that were 100 years in the perfecting, are suddenly no longer available. If you have been bemoaning the on-rush of progress and still hoping to locate a hoard of Sony Artisans, then maybe something in this newsletter will make it easier to bend to the inevitable.

A CRT (Cathode Ray Tube) monitor has traditionally had several good things going for it:

- Has a naturally wide viewing angle.
- Can change screen resolution with no scaling problems.
- Might produce more blues than some LCD's.
- Might be less likely to produce banding.
- Can vary white point color at will as you are controlling the production of white.
On LCD's white is supplied by the backlight and coloring it is done by filtering.

On the other hand, an LCD (Liquid Crystal Display) has the following advantages:

- High brightness - possibly offering better shadow detail and contrast
- Razor sharpness - every pixel counts
- Flicker-free - easier on the eyes
- Energy efficient, light, compact, easily portable
- Very stable white balance
- Often has longer life - can get dimmer over time, but the colors tend to stay the same.

Since LCD's are rather new animals for many of us, let's look at how they work.

Fluorescent lights or white LED's (Light-Emitting Diodes) provide the light for the

screen. This backlight shines through the LCD material which is a liquid or half-fluid substance that can allow light to pass or not, controlled by an electric field. In front of the LCD layer is a color filter which contains a red, green and blue filter for each pixel in the monitor's display. These layers are all sandwiched by two polarizing filters, and the whole business lies behind the front plate which is the surface of the screen that you see in front of you.

<http://www.colorwiki.com/wiki/Image:LCD_micro.png>

The Liquid Crystal layer determines whether or not (and how much) light will pass through the RGB filters. This is how the color for each pixel is formed. Therefore, from its essence, an LCD monitor is quite different from a CRT, and has a whole different set of advantages and challenges.

The backlight is somewhat independent of the color producing function in an LCD. It is possible to put any kind of light behind an LCD panel, and some new photographic printers make use of super-bright LCD panels as exposure engines.

<<http://www.express-imaging.com/products/europa.htm>>

Unlike a CRT, where each of the RGB guns can be brightened or dimmed - affecting the brightness and the color, the LCD has a constant source of light that is independent of the coloring function. This explains why some LCD's (like the Apple Cinema Displays) have only a backlight adjustment on them. In a sense, that's the only hardware adjustment you need.

In order to produce "black" on the screen, the LCD elements need to completely block the backlight from shining through. As good as these are at trying to block light, they are not going to be as effective as a screen which actually turns down the light at its source, as a CRT does. For this reason, LCDs will not be able to get as black as CRT's, and we sometimes see "backlight bleed" shining around the edges of a dark screen. On the other hand, LCDs are great at being brighter than CRT's, and the extra brightness can be called into play to provide more shadow detail.

If an LCD can't get as black, how can it show more shadow detail?

Among the many ways our eyes can get tricked is low-light sensitivity. An equal amount of progressively darker shadows does not result in an equal perception of that change in our eyes. In near-dark situations, our eyes have trouble detecting subtle changes in shadow.

Because of this, it helps to have a monitor that can be brighter. A brighter monitor actually expands the range between the whitest white and the darkest dark. This extended range gives LCD monitors plenty of elbow room to

represent all the steps along the way, including the shadow areas. (Ironically, this might be why some people find more banding with LCD's. More on banding below.) People will look at a bright, new LCD and say "Wow! I've got richer blacks!" The truth is, the blacks aren't deeper, they're just seeing more apparent contrast because the whites are so much "farther away" from the blacks.

Video cards, LUTs, 8-bits? What IS all this???

The color image in your computer needs to get to your display in order for you to see it. In order to do that, the signal needs to be transformed in a video card (also called "graphics" card or board) before it is sent to the monitor for display.

- Video cards contain edit-able color "curves" which can be changed to compensate for any irregularities in the way the monitor displays color.
- These calibration curves are exactly analogous to the RGB curves in Photoshop.
- Because these are on your video card, these effect everything that gets displayed on your monitor (even non-color-managed applications.)
- Even though these are operating all the time, you don't get to see the actual curves unless you have a piece of software that allows you to. Nor is there any need to. You are wanting to have your monitor calibration software figure out precisely where to set these curves.
- These curves are also called video LUTs (Look-Up Tables) or "Gamma Curves" or a few other labels made up just to confuse you.

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| A D V E R T I S E M E N T - - - X-RITE DTP-94 Optix XR Pro Monitor Calibrator
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|
| DEAL #1   Print and Soft-Proofing Bundle      $349.00 plus shipping
| =====
| Includes: Monaco Optix XR Pro* and CHROMiX ColorValet Print Profile (RGB
| or CMYK)
|
| Monaco Optix XR Pro is an award winning monitor calibrator at the best price
| anywhere!
| CHROMiX ColorValet Profiles are regarded the highest quality custom profiles
| in the world
| and the standard to which other profiles are compared.
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| Call ColorGear Sales 866-CHROMiX x1 or email
| <mailto:sales@chromix.com> for more information
| for the above Print and Soft-Proofing Bundle
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|
| DEAL #2 Monaco Optix XR Pro* Only \$279
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|
| *Until inventory is gone. One of the industry's top monitor calibrators, get it
| while you can!
|
| For more information, or to order:
|
| <[http://www.chromix.com/ColorGear/Shop/productdetail.cxxsa?toolid=1086&pid=1
.cn27](http://www.chromix.com/ColorGear/Shop/productdetail.cxxsa?toolid=1086&pid=1.cn27)> or
| call ColorGear Sales 866-CHROMiX x1 or email
| <<mailto:sales@chromix.com>> for more information
| for the above Monaco Optix XR Pro* Only
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When you create a monitor profile using one of the common software packages, you first use the built-in monitor color buttons to get the monitor reasonably close to what you want, then the software runs a series of color patches past the colorimeter hanging on the front of your display. When it is through, the color curves in your video card have been tweaked and adjusted so that your display looks right. At that point, your monitor is "calibrated." But we're not done yet. A further step is taking the calibration state and rolling it into an actual monitor "profile." (Some monitor profiling systems lump the calibration and profile-making tasks into all one step.)

The information about those curves is saved as a separate tag in the profile itself. Notice the profile does not "do" the color transformations itself. It merely keeps track of the condition that the video card needs to be in - in association with the profile. Then, anytime this profile is used, the vctg tag is called upon to tell the video card what curves to apply. This is why a simple matrix monitor profile can be fairly small in size compared to printer profiles. A monitor profile really gets the video card to do most of the work! In addition to storing the video card information, the monitor profile's main purpose is to be able to describe to an ICC-aware application like Photoshop how the monitor produces color.

On Mac computers, you can switch from one monitor profile to another and watch the screen change color as it automatically picks up new video curve information from the different profiles. All modern Mac computers do this.

There are some (very few) Windows PC cards that do not support editable calibration curves (or LUTs.) In addition, Windows operating systems need

extra help to get these LUTs working. Many monitor profiling software systems have a quiet little extra program just for Windows systems that load the curves back into the video card automatically when the computer is restarted, since Windows systems lose this information when the computer is powered down. You might see something in your startup menu about gamma loader or "initializing display" when you start your Windows computer. There are also third-party applications (like Microsoft's Color Control Applet) that will allow you to switch monitor profiles at will as well as providing other functions like installing, inspecting and renaming them.

<<http://www.microsoft.com/windowsxp/using/digitalphotography/prophoto/colorcontrol.msp>>

Flat curves?

Back to our discussion of the video card...

- Being an 8-bit system ($2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 256$), these calibration curves are limited to 256 levels of input and output value for each channel (RGB). From white to black, you have 256 "places" along the color ramp. This may seem like plenty, until you start to imagine an image with blue sky, and how you expect to see one subtle hue of blue blend easily into another shade of blue, and so on. Imagine further that in order to hit your calibration aims, your video curves had turned blue down throughout the curve. This will further restrict how many steps of color are available, and this reduction in resolution can result in "banding". Banding is happening when a monitor is showing blocks of color with noticeable transitions, where there should be a smooth gradation between colors. It is especially visible when looking at a smooth grayscale pattern. You can make a grayscale gradient (in RGB or Lab) yourself in Photoshop or download this White Balance Target from the Hutchcolor site. Make sure you view it at 100%.

<http://www.hutchcolor.com/Targets_&_images_to_go/White_Balance_RGB.hqx>

I don't want to overstate this because not everyone has this problem, but some setup situations with LCD's can make banding more likely.

Some of the better monitors have graphic processors built right into the monitors themselves. These LUTs/Curves can have 10-, 12- or 14-bits per color channel. Even a mere 10-bit internal LUT will get you a whopping 1024 points of adjustment. The computer's video card can stay "zeroed-out" at a perfectly flat curve, and the monitor's internal graphics unit can do the high-precision grayscale curves. That way, nothing in the computer's video card is restricting the resolution or reducing brightness.

Next time, we'll look at Part Two of Monitors. There's a lot more to talk about:

- What gamma and luminance settings should I choose?
- How/when to select different white points: D50, D65, Native, Custom?
- What is DDC?
- Matrix vs. Lookup tables; 8-bit vs 16-bit profiles.
- Version 2 vs. Version 4 profiles.
- LCD native resolution and text.

Pat Herald
May. 2007

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USED/ OPENED PRODUCT FOR SALE - ColorNews newsletter-only specials

7 ea opened Monaco Optix XR (New \$219) \$165 <-- - price drop

2 ea opened ColorEyes Display Bundle (New \$319) \$269

1 ea opened Xrite Eye-One Display 2 (New \$219) \$189

1 ea X-Rite DTP-22 Digital Swatchbook (serial) \$469 <-- price drop

1 ea Fuji [ColourKit] Monitor, RGB Output Profiler & Image Processor software bundle. New. \$279

3 ea new Hoodman Adjustable Monitor Hood 13"-23" - never used, open box (new \$47.95) \$38.95

In a visit to CHROMiX.com or profilecentral.com, you opted to receive this newsletter. You may have also heard Steve Upton speak and requested more information. If you have received this message in error, we apologize. We value our relationship with you and do not want to spam you. See below for details on how to provide feedback, how to unsubscribe, or how to become a sponsor.

FEEDBACK and FAQs To submit questions or feedback to CHROMiX, email us at <mailto:colornews@CHROMiX.com>.

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