

## Techbits

### Study: Gizmos no longer just for dads

SAN JOSE, Calif. (AP) — Forget the flowers. Moms appreciate electronics gizmos as much as dads, according to newly released retail data.

Consumers spent significantly more on gadgets for mom this year than they did last year, approaching the same levels for dad, market researcher The NPD Group Inc. found in a comparison of electronics sales from the weeks preceding Mother's Day and Father's Day.

Specifically, consumers spent more than \$865 million in the week before the Mother's Day, up 9 percent from last year's \$791 million. Spending for the week before Father's Day was about \$873 million, up 3 percent from last year's \$846 million.

Some of the hot items for Mother's Day: digital cameras, which increased 27 percent in unit sales this year; portable music players, which jumped 40 percent; and satellite navigation systems, which shot up more than fourfold.

### Broadband Emmy nominees announced

NEW YORK (AP) — The Web sites for The New York Times and The Washington Post led the slate of nominees for the first-ever Emmy Award for broadband news and documentary programming.

For news and documentaries, NYTimes.com garnered three nominations: columnist Nicholas D. Kristof's multimedia presentation on atrocities in Sudan; a pair of videos on the drug policies of Bolivia's new president; and a seven-part interview series accompanying the newspaper's investigative piece on child pornography.

WashingtonPost.com got two nominations: a Web documentary on the effects of corruption, poverty and history of authoritarianism in Azerbaijan; and four videos on the lives affected by Hurricane Katrina.

Also nominated were MTV News segments on the Oct. 8, 2005, earthquake in South Asia, as shown on Overdrive.com; and National Geographic's webcasts on Katrina.

# Monitor calibration is key when color on screen doesn't match printer output

100 years ago, Kodak had the slogan, "You press the button, and we'll do the rest." Those who have taken the plunge into digital photography know all too well that the slogan could now read, "You press the button, and you do the rest."

Fortunately that is changing now that most labs and photo stores offer digital printing. But for years, many digital photographers had to print their own images, and many still do.

One of the frequent complaints I hear about this is that the print seldom matches what was seen on the computer monitor.

There are many reasons for not getting a good match between screen and print. The first is simply the way in which the two are viewed. The computer screen involves projected light, while the print involves the use of reflected light.

That in itself can be a big difference, which is why many photographers prefer slides to prints. There is a brilliancy in a slide that cannot be transferred to paper. The same is true with digital imagery.

Even given the limitation of reflected light on a print, however, you can still get a good match to what is seen on the monitor.

Every device that captures and displays a digital image has its own way of interpreting color. That can result in a big change from what you see on the LCD of the camera to the resulting print.

In between the two, there



WAYNE PALMER

## Bits & BYTES

are many other variables in how color is interpreted. The computer's video card and the monitor both have controls for brightness, contrast, and color. Then there are all the different possibilities in models of printers, inks and papers.

Also, users have their own ways of seeing color, which can vary from day-to-day and even minute-to-minute. The level and type of lightning in the room can alter color perception. Even the color of your clothing can throw a cast onto the monitor screen.

And for good measure, the editing software can change how you see color on the monitor. There are so many variables that you might wonder how you ever get a color match at all.

It wasn't all that long ago, that the top imaging software producer could only suggest the trial and error process of getting your prints to match your screen.

It wasn't until color management software was introduced — software that interprets the color information as it travels through the digital workflow process — that the guessing game came to an end.

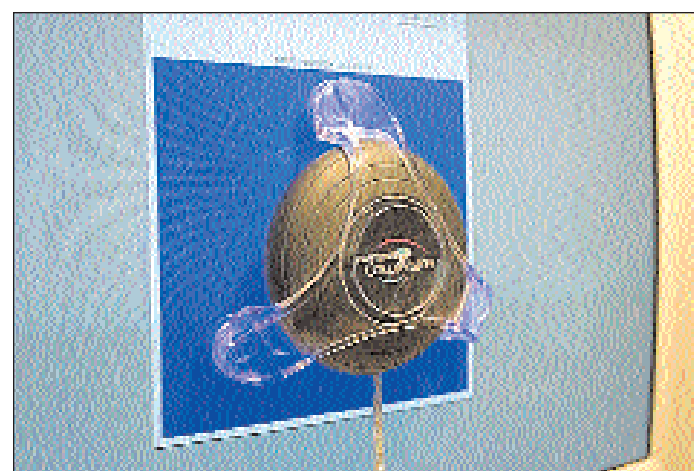
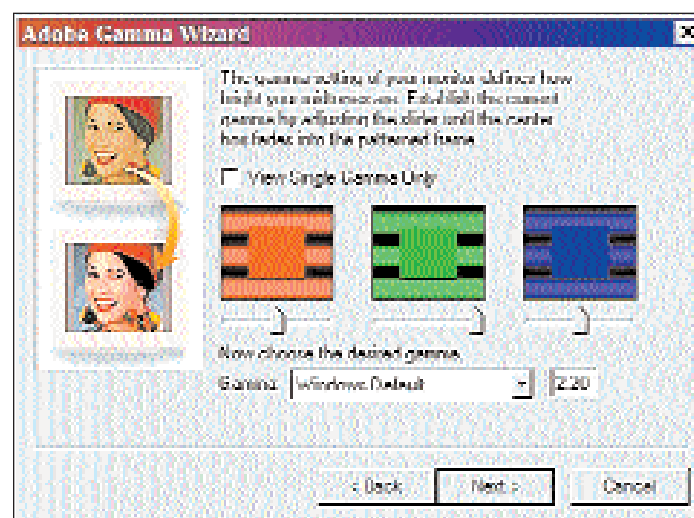
One of the key elements in that process is making judgments based upon what we see on our computer monitor.

You may automatically assume your monitor is an accurate representation of the image. But if your monitor is not set to a standard, then getting a screen-to-print match is pure coincidence.

If you have ever visited an appliance store, and looked at the rows of television sets, you may have noticed very few TVs had matching pictures. The same would be true with computer monitors. So which one is correct? The answer is, it really doesn't matter as long as what you see on the screen can be transferred accurately to the printer.

This is where monitor calibration comes in. Calibrating your monitor is setting your monitor to some standards for brightness, contrast and color. Once the calibration has taken place, a file is created that accompanies your image to the printer and translates the color you see on the monitor to the printer. With this simple procedure, screen-to-print accuracy will greatly improve.

How do you calibrate your



PHOTOS PROVIDED

The Adobe Gamma monitor calibration utility, top, helps you calibrate your screen color. The "Spyder" device, bottom, made by ColorVision, calibrates the monitor more accurately than the eye.

monitor? You will need a calibration utility. If you use Adobe Photoshop or Photoshop Elements, you have a monitor calibration utility called Adobe Gamma that was placed in the Windows Control Panel when you installed the program.

If you do not use these programs, you can find free monitor calibration utilities on the Web. Mac users have had one all along called ColorSync, which is part of the operating system.

Although these utilities will get you into the ballpark for good matches, they rely on your subjectivity in evaluating your monitor's color during the calibration process.

If you are really serious about screen matching, you should obtain a monitor calibration device from companies like ColorVision, Pantone, GretagMacbeth, or Monaco/X-rite.

That removes the human element from the calibration process.

Keep in mind, with all these efforts, there are still many variables that can affect your monitor's color. Colors can drift over time, which means your monitor must be recalibrated on a regular basis.

And ideally, your work environment should be a place where the lighting is consistent and the walls not filled with distracting colors.

Also be careful about wearing bright colors when you are trying to correct color. That color cast you may be trying to remove may be a reflection of what you are wearing.

People who know me may notice that I almost always wear black or dark blue. Just so you know, it's not that I am Goth, paying tribute to Johnny Cash, or chromatically challenged in clothing choices.

It's just of one of the many steps I take to get the best screen-to-print match possible.

### Tips for Better Screen Matching

- Learn the controls on your monitor so you can easily change the color temperature, brightness and contrast when calibrating.
- If you are using a CRT monitor, Cathode Ray Tube or simply a tube monitor, you should wait until the monitor has been running at least one half hour before calibration, to allow it time to warm up.
- CRT monitors tend to drift more over time than LCD screens, Liquid Crystal Display or the newer thin screens, so plan on calibrating them more often.
- Do your most critical color correction in a work environment that has consistent lighting. In professional printing environments, walls are blank and painted neutral gray with the monitor being the brightest light in the room.
- It is very easy for the eye to adjust to color-casts. Give your eyes an occasional break so you can view your image from a fresh perspective.
- Do not use after market inks and paper unless you're doing so for creative reasons. Doing so just to save money will usually result in unsatisfactory results. The manufacturers of the printers test their inks and papers to come up with combinations at settings for the printers to produce good results. And if you do use after market inks and papers, plan on a fair amount of testing to achieve good results.
- Even with all your best efforts, you can still experience an effect with your prints called metamorphism. This phenomenon is when an object changes color when viewed under different lighting conditions.

# Storage industry bets drives will keep getting bigger, prices will keep dropping

By MARK JEWELL  
AP Business Writer

HOPKINTON, Mass. — Despite a relentless slide in the cost of keeping electronic information, executives at companies that store data for the business world say they expect to keep making money.

The reason? Look no further than what's happening in millions of homes around the world, they say.

Just as businesses are building ever-larger databases and searching for new ways to manage the flood of information, consumers are storing all their music, photo and massive video files — and seeking better ways to organize it all.

They can do it because technological advances have enabled ever-greater amounts of information to be packed more densely into a given amount of disk space, at little extra cost to storage suppliers. That has increased capacity and made it far less expensive to keep big files.

"Ten years ago, a 1-gigabyte disk drive was a really great thing," said Bob Schultz, senior vice president and manager of Hewlett-Packard Co.'s StorageWorks division. "Last Christmas, I bought a 1-gigabyte memory stick for my daughter's camera. I suppose it cost \$5,000 a decade ago for that disk drive, and I think the memory stick cost me \$50."

From home offices to corporate data centers, society is demanding ever-greater amounts of information, and easier ways to find it and back it up.



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Mark Lewis, EMC executive vice president and chief development officer, no longer tries to delete unnecessary information from his computer.

The data storage industry is seeing rising demand from several areas: Growth in mobile computing has increased reliance on centrally stored data that can be accessed remotely; natural disasters have persuaded corporate customers to back up data at multiple sites; and new data storage markets are emerging in places like Asia and Latin America.

Government and legal record-

keeping requirements also are expanding as more work is done via e-mail and instant messaging; storage-intensive video data are more common, from security camera footage to movie downloads; and inventory-tracking radio-frequency tags are creating new tidbits to archive.

At Boston's Beth Israel Deaconess Medical Center, a switch from film to digital medical images such as for mammograms has helped drive a 100-fold increase in the amount of information stored at the hospital's data center over the past five years, said John Halamka, chief information officer for Beth Israel and two other Boston-area hospitals.

The three hospitals' storage budget of \$2 million has risen at a far slower rate, because new hardware is increasingly efficient at storing large amounts of information at lower costs. At the same time, ever more information needs to be preserved, he said.

The growing demand to store seemingly anything is a key reason why the storage industry is spending more on acquisitions and research — even though the prices that data firms can charge for supplying increasingly efficient and higher-capacity storage hardware continues dropping, just as prices for computers have fallen relative to the amount of information they can process.

While it costs less for the industry to supply a given amount of storage capacity, the resulting drop in

prices has drained hardware revenue and challenged bottom lines.

So data storage firms are relying not only on storage capacity to drive profits, but also services and software that make the flood of data easier to sort through and keep secure.

"If I only have hardware and I just keep helping make you more and more efficient at less and less cost, eventually I'm going to hit a wall and it's going to be tough for me to make money," Joe Tucci, the head of leading storage vendor EMC Corp., said in a recent interview.

The trend is also apparent with consumer storage: It costs less than two-tenths of a penny to store a typical song download of 3.9 megabytes, which would have cost more than \$7 to store in 1992, according to John Rysdning of technology research firm IDC.

Hopkinton-based EMC shipped customers more storage capacity per month last year than it did in all of 2000, and projects such growth to continue.

The trends are industrywide, affecting EMC and more diversified rivals including HP, IBM Corp., Hitachi, Dell Inc., Sun Microsystems Inc. and Network Appliance Inc.

"It's kind of phenomenal," HP's Schultz said. "You get to these numbers where people say, 'Gee, in the next three years we're going to ship as much capacity as we shipped in the whole history of the industry.'"

But because of dropping prices, storage hardware sales provided only about 38 percent of overall

industry revenue last year, compared with more than 50 percent in the late 1990s, according to IDC. The rest of the revenue comes from software and services.

IDC forecasts storage capacity shipped to customers worldwide will rise around 50 percent annually through 2010, with revenue from that hardware increasing 3 percent, to about \$30 billion.

Such modest revenue projections have left Wall Street skeptical that the industry can return to the big profits it enjoyed when technology spending surged in the late 1990s.

Declining prices are one reason EMC's stock has remained flat for nearly three years, despite 11 straight quarters of double-digit revenue growth and profits that rose 30 percent last year.

"Pretty much everyone in the industry has faced this pressure," said Erick Maronak of Victory Capital Management, an EMC investor.

The technological advances also have ushered in a new way of thinking about data storage by corporations and consumers, said Mark Lewis, EMC's executive vice president and chief development officer.

Years ago, anytime Lewis bought a new home computer he carefully went through his old computer's files to see which ones were worth saving on his new PC and which ones would unnecessarily take up hard drive space.

These days, he just moves everything from his old PC to his new one.

"I don't even bother to try to delete any information," he said.