

THINKING BIG SCREEN? DIGITAL TV BUYERS GUIDE INSIDE



ELECTRONICALLY REPRINTED FROM

AUDIO VIDEO INTERIORS

.com

NOVEMBER 2001

THE ELECTRONIC HOME ENTERTAINMENT AUTHORITY

PRIMEDIA
The Authoritative Source

SCREEN TEST!

Stewart's *GrayHawk* Takes Off

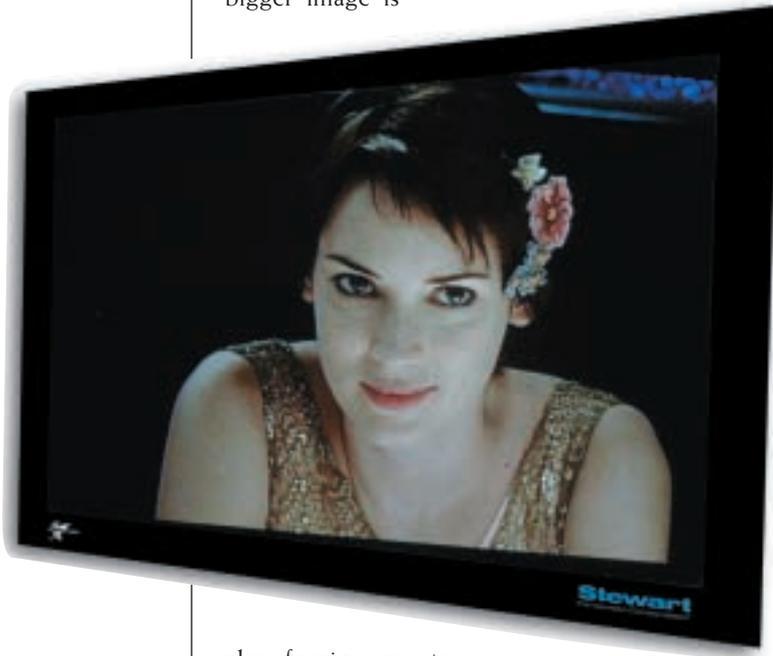




FLIGHT OF THE GRAYHAWK

Stewart invents a screen especially for digital projectors

Moving from a direct-view video monitor to DLP projection has caused seismic shifts in my home theater. First, of course, came the recognition that movies and ball-games would never be the same. DLP's giant bright image has turned them into highly emotional experiences complete with audible gasping and (when there's a game on) multilingual cussing. The bigger image is



also forcing me to rethink the placement of my surround speakers. And finally, ancillary components that enhance the projector's performance have begun creeping into the system. A few months ago, I reviewed a hot video processor from DVDO/Silicon Image (and there's more to come). This month's special guest is Stewart's Grayhawk—the first projection screen optimized for DLP.

The Grayhawk is literally a grey screen. Its color comes from a grey undercoating. Combined with translucent optical coatings, that enables it to deepen blacks and other colors while improving shadow detail. Like other Stewart Filmscreen products, it's both washable and flame-retardant. I reviewed it with a one-year-old and much loved Zenith DSV-110 DLP projector (600 x 800), Pioneer DV-37 progressive-scan DVD-Video player, five-year-old Toshiba hi-fi VCR, analog cable TV, and Tributaries video interconnects.

My review sample was actually a split screen that came straight from the floor of a trade show. One half was Grayhawk while the other half was Stewart's Studiotek 130 (developed by Joe Kane and "ideal for CRT projection" according to the Stewart website). This enabled me not only to study Grayhawk's unique qualities but also to compare it to a high-quality conventional screen. The comparison was instructive. It convinced me that a permanent screen solution for my home theater will have to include either Grayhawk or something somewhat like it. In other words, speaking as a DLP-oriented viewer, I like low-gain screens.

Manipulation of Gain

In screens, the most significant specification is gain, and the key number is easy to remember: 1. A screen with gain of more than 1 will reflect back more light than it receives from the projector while a screen with gain of less than 1 will reflect back less light. Most screens are "high gain" models. Stewart, for example, offers models with gain of 1.0, 1.3, 1.5, 1.8, or 2.0.

More gain can be good. It produces a brighter picture and enables you to get more mileage out

of a CRT projector's expensive trio of red, green, and blue tubes (or the lamps in other kinds of projector). Another benefit is that when CRTs are driven at lower levels of brightness, they're less likely to "bloom," preserving geometric accuracy. However, high-gain screens come with tradeoffs. The gain in brightness happens only in the center of the screen. Off to the sides, viewers actually see less brightness than they'd get with a 1.0 (neutral) screen. The greater the center-gain, the more light is lost for off-axis viewing.

This manipulation of gain may work for CRT-based projectors but it is irrelevant, even destructive, when used with a DLP-based projector. DLPs have inherently greater light output and don't need that kind of assistance from the screen. Increasing the brightness of a DLP image makes it painfully bright. Where DLP needs help is in the area of "black level." That's the thing you get more of when you turn down the brightness control on your video display.

To enhance black level, the Grayhawk has a gain of slightly less than 1.0, or 0.95 to be precise. It trades about five percent of the projector's available brightness for blacker blacks. If you use your DLP projector in a darkened room—which is the proper way to watch any front-projection video display—you'll find that black comes closer to the "absence of light" that represents theoretical perfection. You may also notice, as I did, that other deep colors achieve greater fidelity. You'll see a true maroon, a deep azure, an emerald green. The Grayhawk brings DLP projection a step closer to the CRT gold standard.

A Time to Tweak

That does not necessarily mean that the Grayhawk (or DLP, for that matter) offers an idiot-proof path to the perfect picture. Proper projector setup is still critical. While watching Stewart's handy split screen I noticed that either side could be rendered unwatchable if I optimized the projector's brightness (black level) and contrast (white level) settings for the other side.

Optimizing for Grayhawk caused the whiter half of the screen to generate little islands of brightness that were painful to watch for any length of time. Optimizing for the white side made Grayhawk's

images too dark and muddy. I could set the projector to make either side look excellent but there was no way to set it to produce a good balance of darks and lights on both sides of the screen. Using a Grayhawk allows—indeed, requires—slightly more intense contrast and brightness settings.

However, I doubt that using a Grayhawk would greatly shorten the lifespan of a projector lamp. At a gain of .95, and using 1.0 as a reference point, it isn't losing a whole lot of light or causing the lamp to work a whole lot harder. Trying to use a projector in a partially lit room is far more likely to reduce picture quality and stress the lamp.

A good screen is a friend to filmmaker and viewer alike. It adds to the suspension of disbelief that pulls you into a good story.

Moreover, many viewers would consider Grayhawk's increased black level and color fidelity to be ample compensation for the few lumens that it gives up.

If you buy a Grayhawk, adjust the projector immediately. If your setup was tweaked by a technician from the Imaging Science Foundation or a CEDIA-certified installer, bite the bullet and invite him back again.

The Grayhawk costs \$18.30 per square foot. According to Stewart it can benefit LCD and D-ILA projectors as well as DLPs. A good installer will help you determine the correct type, size, and shape of screen for your room and projector.

But when all is said and done, the technical details matter less than the sheer impact. A good screen is a friend to filmmaker and viewer alike. It adds to the suspension of disbelief that pulls you into a good story. Many times while watching the Grayhawk I had to remind myself: "Calm down. It's just a movie." That's how I knew I was having a good time. www.stewartfilm.com ♦

Mark Fleischmann's book Practical Home Theater is available through online booksellers (or 800-839-8640).

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Filmscreen Corporation[®]

**1161 West Sepulveda Boulevard
Torrance CA 90502**