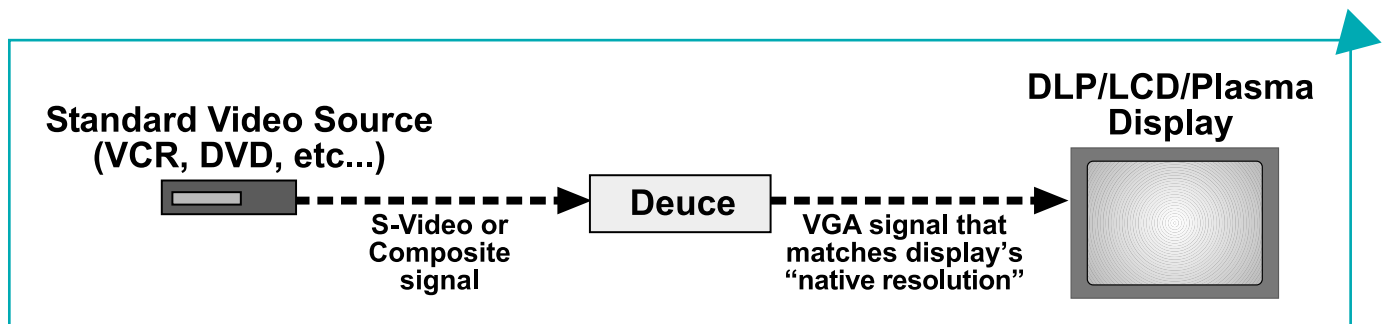


Overview:

Unlike CRT-based displays, all LCD/DLP/Plasma (PDP) type projectors and displays have a set number of pixels that comprise the display area. This number of pixels, displayed in either in a 4:3 or 16:9 widescreen aspect ratio, is known as the display's *native resolution*. When discreet resolution display devices receive input signals that exactly match their native resolution, they are able to produce the best possible image. Because of this, the native resolution is sometimes referred to as a display's "sweet spot."

What happens when a normal, standard definition TV signal (SDTV) is the source for such a display? SDTV signals are not directly compatible with any LCD/ DLP/PDP currently on the market. Is there a way to take advantage of the display's native resolution in order to produce the optimum image with an SDTV source?

This TECHnique will describe how Deuce® Intelligent Video Scalers allow the user to match the "sweet spot" of any display and therefore benefit from the highest quality image.



Details:

All LCD/DLP/PDP type displays (also called discreet-resolution and fixed-resolution displays) available on the market today have native resolutions of 800 x 600 or higher and operate with refresh rates of 60Hz and higher. With the exception of some HDTV displays, most use a "progressive scan" format.

Standard TV signals (SDTV) vary in detail around the world, but all the current standards — NTSC, PAL and SECAM — have main characteristics that need to be changed in order to be compatible with LCD/DLP/PDP displays. First, all SDTV signals have a refresh rate and picture resolution of approximately one half the minimum native resolution of LCD/DLP/PDP displays that are currently on the market. And secondly, all SDTV signals have an interlaced format, compared to the non-interlaced format of LCD/DLP/PDP displays.

How is the difference in resolutions between SDTV and the display's native resolution best handled?

Video scaling is the superior method to convert SDTV signals to match the native resolution of any LCD/DLP/PDP. Video scaling produces an output that is completely independent of the original SDTV source signal and matches the user's choice of many 4:3 and 16:9 standards.

Deuce, Communications Specialties' video scalers, use sophisticated processing algorithms to manipulate the image, thereby changing the resolution, refresh rate and aspect ratio to exactly match the native resolution of any given display. Advanced motion compensation is used to eliminate the distortions that result from the de-interlacing process. In addition, different Deuce models offer a range of

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other controls to further process and fine tune the scaled image.

Deuce also allows for the output of images in two different aspect ratios – either in the standard 4:3 ratio or in the widescreen, 16:9 format. Many LCD/DLP/PDP devices now come with 16:9 ratio displays and most Deuce models allows the user to take full advantage of this feature.

Using Deuce is extremely simple. The output from an SDTV source is fed into either the video or S-video input on Deuce, and Deuce's output is then fed to the LCD/DLP/PDP device. Using push button controls on the front panel of Deuce, the user selects the desired output resolution, aspect ratio and refresh rate so as to match the display device's native resolution. By using Deuce to exactly match the display's *sweet spot*, the display will produce the sharpest, brightest, and clearest image possible.

Suggestions:

The Deuce Family FEATURES COMPARISON CHART can help you identify the best model for your needs.

Deuce MC offers the most control over the type of motion compensation algorithms that are used to process your video. Deuce HD offers outputs that match the resolutions used by many of today's HDTV displays. Deuce SDQ offers the market's most cost-effective scaling solution, combining premium processing and performance without costly "extras." And Deuce Pro offers superb flexibility for professional system integrators.

CSI Products Used In This TECHnique:

- Deuce MC, HD & SDQ.....2220, 2230, 2240
- Deuce Pro Intelligent Video Scaler 2210A

Related TECHniques:

- Educational Guides:
 - *Introduction to Video Scaling*
 - *Advanced Video Scaling*
- T-07 Using Deuce Video Scaler in Videoconferencing Applications
- T-05 Using Deuce Video Scaler in Video Cube and Video Wall Applications
- T-13 Using Deuce Pro Video Scaler as a System Switcher