

Overview:

The Video Wall, an increasingly popular form of large-screen display, is actually a collection of smaller, rear screen video projection cubes, typically configured in a grid pattern (2x2, 3x4, 4x5, 6x8 etc.). These cubes feature either CRT, LCD or DLP projectors that display a progressive scan RGB signal. In order to turn these individual cubes into a larger, synchronized display, a "video wall processor" segments and distributes the video source as a single, large picture across the array of cubes. It also provides the ability to size, position, combine and sequence up to four video sources for display on the video wall.

This TECHnique illustrates how CSI's family of Deuce® video scalers may increase functionality and improve performance of a video wall installation. By converting interlaced NTSC and PAL video sources to progressive scan RGB, Deuce scalers provide both the video wall processor and the video cubes system with increased flexibility and better picture quality.

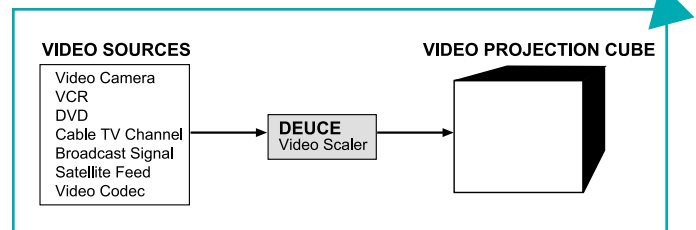
Details:

Certain video wall processors provide only progressive scan RGB inputs, such as computer video. For these units, a video scaler such as Deuce may be used to convert NTSC and PAL video to progressive scan RGB. In addition to providing the basic, necessary conversion, Deuce uses sophisticated de-interlacing, motion compensation and time base correction algorithms (for stabilization), so as to provide the highest-quality image. It then generates output that directly matches the native resolution of the cubes, so that the wall processor does not need to "reprocess" the image, a step which often causes unwanted artifacts and scan lines. (See the CSI education guide entitled: *Intelligent Video Scaling, A Superior Alternative to Line Doubling and Line Quadrupling*.)

Another use for Deuce would be in environments that require multiple monitor displays, such as cable TV facilities, traffic control centers, surveillance monitoring, broadcast control rooms, multi-point videoconferencing, and certain multimedia and billboard applications. In situations such as these, the

need for more than four video sources to be displayed simultaneously is not uncommon. However, this exceeds the capabilities of a video wall processor. For these applications, an individual video scaler designated for each monitor or cube would be an effective solution.

Regardless of the specific application, hooking up a video scaler is a simple process. The original video source is fed into the scaler (via good quality coax), and the output of choice (format, resolution and refresh rate) comes out of it. In most cases, connection to the display device occurs via HD-15 VGA or BNC connectors.



In cases where the scaler is connected to a fixed-resolution display device, it is always best to select the output that exactly matches the display device's "native resolution." This corresponds to the exact number of pixels that comprise the display's image. (i.e. 800x600 or 1024x768) *Note that this is not always the same as the maximum resolution that the display is able to accept.* In the case of CRT displays, however, the best quality image will result from matching the device's *maximum* display resolution. A good quality scaler should provide a variety of output resolutions that match those used by most monitors, cubes, projectors and panels currently on the market.

In addition, video scalers such as Deuce provide multiple output horizontal refresh or frame rates. When connecting to devices that will accept more than one refresh rate, selecting the higher rate (such as 75 Hz) will result in a brighter image with less flicker. This is helpful for high ambient light environments.

Many video cubes offer two selectable inputs. This allows for configurations that require the video wall processor to provide one image to all the cubes, plus the option of having individual video scalers provide

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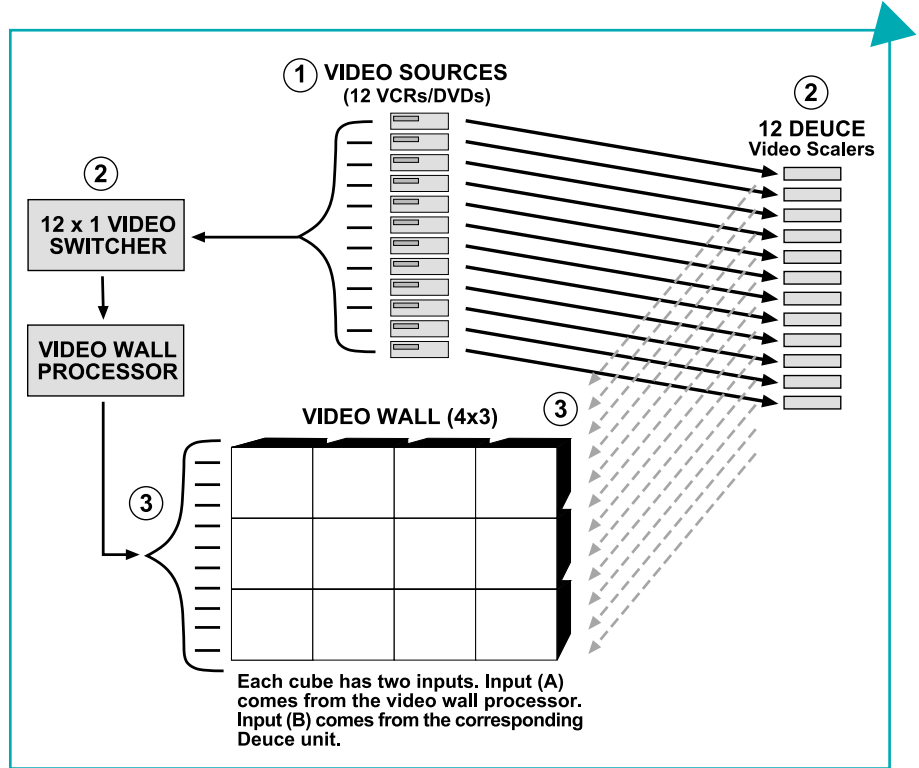
dedicated video sources to each individual cube. By switching between the inputs, an appealing, multimedia effect can result that combines one large image over all the cubes with a montage of different video sources shown on each cube. (See diagram below.)

Suggestions:

Any member of the Deuce Family may be used for the applications described in this TECHnique. The newest generation of Deuce models include the MC, HD and SDQ. Each offers high quality video processing at a very low price. Deuce Pro is more feature-rich, including two composite, two S-video and YUV / RGB component video inputs and a VGA / HDTV pass-through with audio follow video switching. In addition, Deuce Pro offers 8 preset and 2 custom output formats, 4 input aspect ratios and complete image processing. This combination of features makes it a dynamic and flexible presentation tool.

As in any professional video installation, using good quality coax is critical. This is true for both the cables leading from the video source to the scaler as well as the cables that feed from the scaler to the cube or display. Communications Specialties sells cables specifically for these applications. The 1159 series BNC cables for composite video or the 1130 series S-video cables are appropriate for providing input to the scaler. The 1119 series HD-15 cables or the 1143 series 5-BNC cables may be used for the output. All are available in standard and custom lengths.

All Deuce models can drive RGB signals up to 75 feet. However, this distance can be extended to 250 feet with the use of one of CSI's distribution amplifiers, or "splitters." Simply feed the scaler's output into the splitter's input. Models are available for use with VGA (HD-15 connectors) or RGB (5 BNCs) signals. (See "Products Used" for part numbers.)



CSI Products Used In This TECHnique:

- Deuce MC, HD & SDQ..... 2220, 2230, 2240
- Deuce Pro 2210A
- TwinSplit® for VGA 1302
- TwinSplit for RGB 1260
- HexiSplit® for Video 1706
- TwinSplit for S-Video. 1802
- CAB-59 Cable - Coax w/BNC 1159
- CAB-30 Cable - Coax w/4-pin mini-DIN 1130
- CAB-19 Cable - Coax w/HD-15 1119
- CAB-43 Cable - Coax w/5 BNCs 1143

Related TECHniques:

- Educational Guides:
 - *Introduction to Video Scaling*
 - *Advanced Video Scaling*