

Application Note



Driving Multiple LED Displays from One Encore

Single Display and Multi-display Productions

In today's typical concert and convention applications, the Encore Presentation System is used to drive a single LED display. Interconnection is easy: connect the Encore Video Processor's output to a Barco Digitizer (such as LED-PRO or D320), connect the Digitizer to the display — and you've got video.

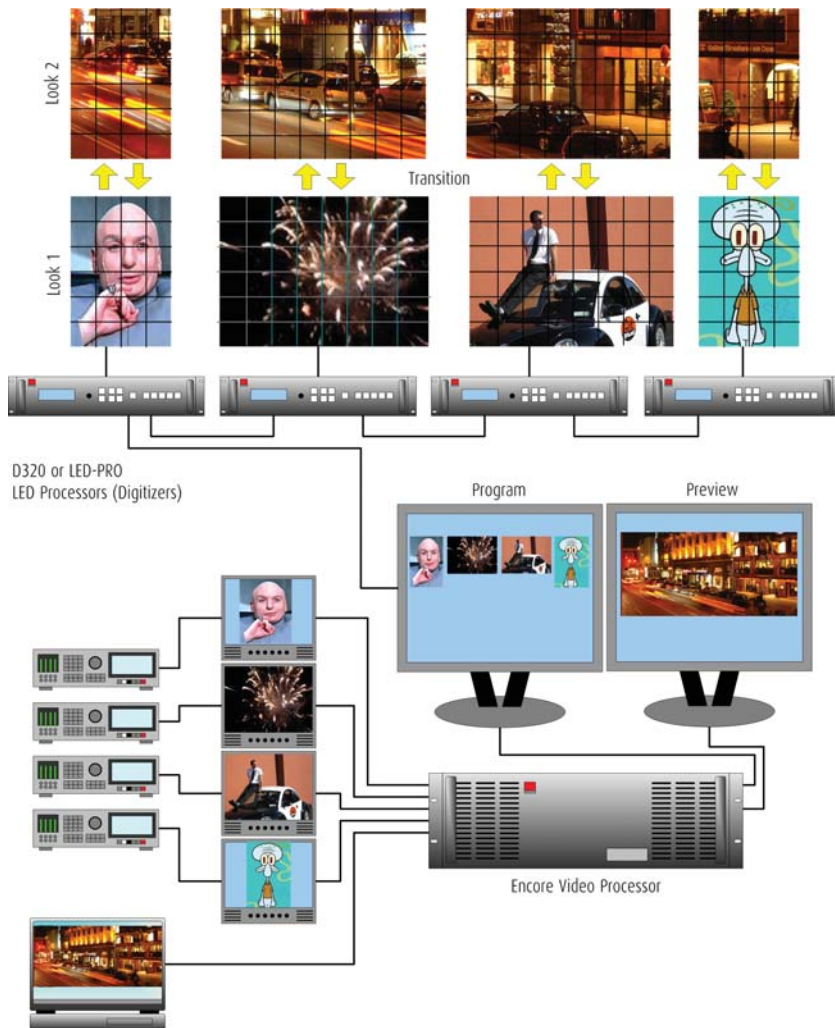
But a new trend is emerging in which multiple LED displays are used on stage — not simply to dazzle the audience, but to convey many pathways of information, graphics and I-mag. Often, these displays can be physically re-configured during the show — with the freedom to move horizontally and vertically across the proscenium arch. Barco LED displays were used in this very manner in two recent concert tours: Mariah Carey's "The Adventures of Mimi" Tour, and The Who's 2006/2007 World Tour.

PIP Precision

One would think that multiple Encore systems would be required to make multiple displays work (one Encore for each display), but in fact, only one Encore is needed — with the ability to manage content on up to 12 displays simultaneously (using a fully-configured Encore). The solution is achieved by assigning one Encore PIP (Picture in Picture) window to each LED display, and to use Encore's exacting PIP control plus the precision of the Digitizer itself to dial in the size.

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Step-by-step Pixel Mapping

To precisely assign (and align) Encore PIPs to each of your LED displays, a process called “pixel mapping” is used:

- Configure your system with one Barco Digitizer for each display.
- Configure your system with enough Encore “mixers” to handle the number of LED displays on stage. Remember that each mixer has the capability of generating one PIP if you want to transition inside it, or two PIPs if transitions aren’t required. Thus, if you have five LED displays in your production, you’ll need five Digitizers and five Encore mixers (if transitions are required), or only three mixers (if transitions aren’t required).
- Calculate the native resolution (in pixels) for each of your displays. For this example, we’ll assume that Barco II Lite 6 XP tiles are used — each with a pixel density of 72 x 72. If your overall display uses 24 tiles in a 4 x 6 array, then the display’s overall pixel resolution is 288 x 432.
- Configure Encore’s output to a high resolution format, such as 1080p (1920 x 1080). This resolution gives you a very large “pixel palette” in which to place PIPs.
- Connect Encore’s output to the first Digitizer, then loop the output to all remaining Digitizers.
- Using Encore, create PIPs that precisely match the native resolution of each LED display — in this case, 288 x 432 pixels. As standard, Encore provides total pixel accuracy when configuring a PIP’s horizontal and vertical size. Fill each PIP with source video in the normal way, and ensure that the PIPs do not overlap visually.
- For each Digitizer, set the output to match native resolution of its associated display, and ensure that the input’s aspect ratio matches the output. Finally, crop the input on each Digitizer to precisely isolate the desired PIP. Once complete, you’ll have an exact 1:1 correspondence between each PIP and each display.

Your displays are now perfectly pixel-mapped, with each Digitizer processing only its assigned “slice” of the overall Encore output.

Creativity In Concert

Once your system is configured in this way, all manner of creative configurations are available using Encore’s power:

- Separate sources in each display, with or without transitions.
- Wide-screen sources spread across two or more displays.
- “Moving” sources that transit from one display to another.

The full range of Encore’s effects, including Alpha Cut and Fill, color imaging, borders, monochrome and strobe.

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