NOT YOUR FATHER'S VIDEO WALL

New Gen Displays and Applications for a New Market

By David Keene

Outside of Seattle, in the corporate headquarters of Zones, an IT services and solutions provider, more than 700 people work out of the office, in addition to the dozens of partners who frequently pass through to meet with sales representatives and experience new technology. At the center of the headquarters is a large multipurpose space that hosts everything from town hall meetings to showcases for partners to employee lunches. Until recently, Zones used a projector to share content that included information about new products, staff announcements, and promotions about partners. Sunlight streams into the space from large windows, which washed out the images that came from the projector. Compounding the problem was the fluorescent lighting that illuminates the room. Michael Stavnshoj, a category manager at Zones who helped oversee the project, decided that a video wall seemed like the perfect fit, and Zones decided to install a 3 x 3 video wall using NEC 55-inch X554UN displays, known both for their brightness and ultrathin bezels. Even though the video wall will only run during typical work hours, it is durable enough to withstand 24/7 operation, so Zones never has to worry about a failure at a critical moment during a partner presentation. The direct LED backlighting creates a uniform, high-definition resolution that remains clear and bright no matter how much ambient light is in the room.

In 2016, the video wall is back in a big way — for use in digital signage applications that require larger screen sizes than what a single flat panel can provide. And this is not your father's video wall. Gone are the days of the large unsightly bezel and energy-guzzling video walls that need lots of expensive video processing. The small, ultra-thin bezel video wall is here, now, making possible the near-seamless large screen display that's ideal for many public spaces such as airports, train stations, retail stores, corporate lobbies, donor boards, and much more.

And with interactive features now readily available, you can either upgrade your video wall to interactivity and/or future-proof your digital signage rollout to add interactivity later. New generation LCD panels, improved and much less expensive video processing and content management software, improved durability of LCD panels (including outdoor-rated panels), and better energy efficiency now put myriad video wall hardware and software options in the reach of almost all digital signage installations. And beyond LCD, there are now direct-view LED displays that are configured for video walls and that are getting more high resolution each year. Here are some highlights of major trends and applications.

LCD Video Walls

Starting with the technology that has been around the longest (not, of course, counting direct view LED or old CRT models), LCD video walls are by no means through evolving and offering innovative features. Let's start with thin bezel video wall displays. In recent years technology improvements and engineering break-

Farmers Edge Inc., provider of precision agriculture and independent data management solutions, attends many trade shows across Canada and US each year. They wanted a portable video wall that would bring some impact and wow factor to their trade show booths, and they wanted it to be modular to accommodate different booth sizes. Three Chief LVM2X2 video wall carts were used to mount 12 NEC monitors. Farmers Edge can display 1, 3, or 12 videos at one time, and the whole system can be transported from trade show to trade show. The modular design allows them to use one, two or three carts depending on the size of the booth. One media player is used with each cart to stretch the image across four monitors. When in the same room, the players synchronize with each other to unify for one image. The system can also be run by cell phone. When not at tradeshows, the carts are used at Farmers Edge headquarters for training purposes. From first meeting with the client to debuting the solution at its first tradeshow, it took 30 days.

throughs have allowed thinner mullions, or "bezels," in video walls. (The term bezel refers to the black line or thin border between each screen that makes up a video wall.) The best video wall/flat panel display manufacturers are offering bezel sizes in the "narrow" range: about 3.5mm bezel width. But only the A-tier display and video wall manufacturers are making "super narrow bezel" products available with a bezel size of as little as 1.8mm.

Thinner bezels are all the buzz at trade shows and out in the market. There is an advantage to very thin bezels. Thin bezels reduce the separation between screens and so have the effect of making the video wall appear as "seamless." Although thin bezel LCD panels are more delicate and prone to damage with reduced protection between the bezel and the screen surface and underlying electronics, durability is really better than what you might think. Of course, as bezels get thinner, the cost increases for those units. But the clear trend is toward thinner bezels. (At the time we went to press, LG Electronics offered the industry's slimmest bezel-to-bezel design for LCD — 1.8mm, with its LG VH7B Direct Backlit LED Display.)

4K — Is it Overkill for Video Walls?

With LCD panels and video walls made up of LCD panels, the trend of 4K is as present as it is with stand-alone, single screen digital signage. And while the very nature of video walls means that you can create 4K with tiled 1080p screens, there are and will be more applications with tiled native UHD or 4K screens — to get to 8K, 16K, or however many K you like.

Video Wall Image Processing

The old days of needing highly expensive and specialized video processing hardware to tile content to a LCD video wall are over. There are so many proprietary and third-party video processing devices to easily tile content across multiple screens. But with that ease, there could be confusion in the industry about the kind of media player that is needed for digital signage deployments, or to get content to a video wall in different AV applications. Can an embedded PC be a good choice for a media player, or is it generally better to utilize a separate appliance type of media player to get content to a video wall? How should the systems integrator, or end user, start to separate what is needed to get content to the screen in the most effective way? The key answer to that question is to choose a video wall solution that gives you the option to: [A] use sophisticated third-party video processing platforms to feed content to your video wall and provide for advanced features such as interactivity (touch screen, gesture control, facial recognition, etc.) if needed; or [B] use a display's built-in SoC (System on a Chip) to eliminate the need for a third-party media player and so simply the system design and save on hardware costs. But keep in mind that only a few of the big LCD flat panel makers (notably Samsung and LG) offer the built-in SoC designs.

Direct-View LED Video Walls

If all the developments in LCD technology were not enough, we now have the emergence of an entirely new category of display for video walls: direct-view LED.

While LED walls have been around for a while, the evolution was strong but not dramatic. Lots of low-resolution LED for outdoor use. Think big football stadiums, then go down from there. High res LED bumped along for years, but high res meant anything below 5 or 6mm pixel pitch. Just two years ago, 3mm pixel pitch was revolutionary, when we first saw it from only a few manufacturers. But it was rare and expensive and did not really present an alternative to LCD panels for indoor use, because LCD panels were going through their own revolution and kept coming down in price and adding great new feature sets, including, most importantly, ultra thin bezels.

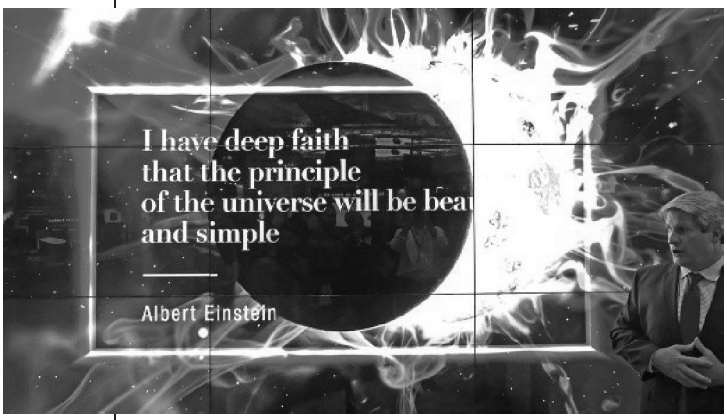
But this year is different, with an explosion of high res direct view LED. Samsung now has 1.1mm LED. Silicon Core has 1.9mm. Planar's 1.6mm is very impressive, and AOTOs 1.2mm technology is out there.

(Story continues on page 18.)

The Planar DirectLight LED Video Wall System is a family of seamless, ultra-fine pitch direct view LED video walls tailored for indoor environments. Available in 1.6 to 3.1 millimeter pitches, Planar DirectLight LED video walls deliver a crisp, high contrast image with its black resin LEDs and Planar MicroGrid Shader, enabling the deepest levels of black. Planar DirectLight LED video walls are designed to maintain color adjustments and gray levels even at low levels of brightness. The Planar EasyAlign Mounting System enables less than 4-inch mounted depth, ideal for space-constrained installations and eliminates the need for rear access space. Its 6-axis of adjustment combined with Planar DirectLight Control Software allows for fine-tuned image calibration. With Planar DirectLight LED video walls, designs can be scaled to fit any size wall including concave configurations.

(Story continued from page 14.)

Planar's Jennifer Davis explains that direct-view LED, "has its roots in outdoor signage and billboards, but it is now achieving pixel resolutions that make it possible for indoor use for a variety of signage applications. A truly seamless canvas is achieved when the joint between the LED modules that make up the wall are hidden in the area between the individual pixels. This allows advertisers and venues to put video walls of any shape, size, or aspect ratio into any space without any visible bezels, at a brightness level, wide viewing angle, and color saturation that makes any video or imagery look vibrant and eye-catching. Some premium offerings in this space, with multi-axis adjustments and thin mounting depth, offer front serviceability, which is often a requirement in public venues where service depth is not available and downtime is unacceptable." [Editor's note: see the Digital Signage Best Practices Guide for Jennifer Davis's full article on new generation displays.]



Dan Smith of LG showing LG's 1.8 millimeter bezel LG VH7B Direct Backlit LED Display at InfoComm 2015.

Historically the direct-view LED video market was rife with competition from low-cost companies mostly based in Shenzhen, China. But premium brands such as Daktronics, Barco, Leyard, and Mitsubishi have been able to maintain revenues due to their reputation in the market. Samsung provides its customers the credibility of a global multinational brand, after the acquisition of Yesco. And now Planar has the deeper pockets and R&D of the larger company Leyard that acquired Planar late last year. (Leyard has more than 250 patents in China. And they sell about 70 percent of their product in China. And indeed they have a high profile in that market, and have had since the opening ceremony of the 2008 Beijing Olympics in the "Bird's Nest" stadium, including the Olympic Rings and the ground scroll display system, that featured Leyard LED.)

Detailing all the new-generation features for video walls for digital signage would take dozens of pages. For more information on trends and applications, see the new edition of the *Digital Signage Best Practices Guide*. ■