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The Next Step in Video Wall Technology

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By Richard Slawsky | Contributing writer,
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Video walls are becoming increasingly popular as a way to cut through the advertising clutter and engage consumers. A video wall can make a grand statement, capturing attention and cementing a brand in the viewer's mind.

New applications and uses are continuously being developed for video wall technology, with those uses expected to drive the digital signage industry going forward. The market for video wall components is expected to grow from $4.1 billion in 2013 to nearly $18 billion by 2020, according to Chicago-based research firm Markets and Markets, with that growth equating to a compound annual growth rate of 23.4 percent.

To date, though, the video wall market has been hampered by solutions that either are too costly and too complicated, or don't take full advantage of screen and media player technology.

Fortunately, that has been changing.

Splitting the signal

At the heart of a video wall solution is the hardware that takes content and splits it up among the screens that make up the video wall.

Traditionally, that has been accomplished in one of two ways. In the first, a TV wall controller takes a single video output and splits it onto multiple screens.

And while that is a relatively simple and inexpensive solution, it does come with a down-side. With a TV wall controller each screen operates at a fraction of the resolution of the original video signal, meaning the investment in high-resolution screens for the video wall is wasted.

The second method involves the use of multiple media players daisy-chained together. While that allows each screen to operate at its native resolution, it also means that the deployer is paying for multiple media players and multiple licenses for the software to drive those players. There is a major problem with keeping content from each one of those individual systems synchronized.

Recently, though, companies have been introducing multi-display systems that, while similar in concept to a TV wall controller, are actually very different.

"A multi-display system can incorporate four, six or 12 outputs, and each one of those displays is being driven at its native resolution," said Dwight Looi, director of production development at Sunnyvale, Calif.-based iBase Technology. "They all combine to serve as a single logical display, combining the resolution of all of those screens. With a 12-screen array, that resolution happens to be 7680 x 4320 – which is an extremely high-resolution display area. Essentially that is an 8K-screen."

The store talks back

SI-60E digital signage player

- 4th Gen. Intel® Core Desktop Processor-based Video Wall Player with AMD Radeon E8860 Graphics and 12 HDMI.
- Up to 12x HDMI display outputs for twelve FHD (1920x1200@60Hz) individual or 4K UFHD video playback or 8K 3D gaming.
- IBASE Multiple-Display Matrix Technology for H/W EDID emulation, flexible video wall display configuration, resolution setting and bezel adjustment.
- IBASE iSMART Technology for power on/off scheduling, power resume functions, low temperature guardian and intelligent OS recovery.
- Intel AMT for remote management.
- 2x SATA 3.0 2.5" HDD (supports Raid 1).
- 2x Mini PCI-E(x1) slots for WiFi, 3G/LTE, video capture and TV tuner options.
- Compact design.

SI-606 digital signage player

- 4th Gen. Intel® Core i Desktop Processor-based 6x 4K Signage Player with AMD Radeon E8860 Graphics and Six DP.
- iSMART - for EuP/ErP power saving, auto-scheduler and power resume.
- Supports up to 6 displays (DP 1.2 / 4K resolution at 60Hz) with independent video & audio output.
- Supports 4th Generation Intel Core i desktop processor.
- Supports 4x DDR3 1600MHz, Max. 32GB.
- Flexible VW display configuration setting, Max. resolution: 11520 x 4320.
- 2x RS232 serial ports, 2x Mini PCI-E(x1) slots for WiFi, 3G and TV tuner options.
- 2x SATA 3.0 2.5" HDD with RAID 1 support.
- Compact and rugged design.

Source: iBase Technology Inc.

Tapping into the technological advantage

One of the key advantages to deploying a multi-display system as opposed to a TV wall controller, other than the superior resolution, is that the MDS allows the video wall array to function as a single monitor.

"Because it is no-different from a single extremely high resolution monitor as far as the operating system and the application software is concerned," Looi said. "It does not require that the Content Management Software send different content to different screens. It also does not require the deployer to pay multiple licenses to support multiple screens, or multiple copies of the CMS software to run on separate systems."

And while multi-display systems are offered by a number of digital signage hardware purveyors, those with the capability to drive as many as 12 screens are a recent development.

Because there isn't currently a Graphics Processing Unit (GPU) on the market that can drive 12 displays, in the case of iBase's SI-60E digital signage player, the system takes six 3840x1080 DisplayPort signals and converts them to twelve 1920x1080 HDMI outputs. The output stage is actually modular and the company is contemplating adding additional output options such as HD-BASE-T, although nothing has been confirmed at this juncture.

The SI-60E won the Buyer's Choice Best Choice Award at the 2015 Computex IT trade show in Taiwan, beating out 40 other products.

Because the system incorporates EDID emulation and display continuity protection, if one screen is disconnected or otherwise fails, the remaining array of screens are unaffected.

"Having Extended Display Identification Data (EDID) emulation guards the interruption of content by preventing the operating system and graphics controller from becoming aware of a screen disconnection or failure," said Doug Dennis, marketing/channel sales manager with iBase. "It doesn't go to a failure mode, so in a 12-screen array the other 11 screens keep playing video. Once the error is resolved, the 12th screen will sync back up."

About the sponsor:

Focused on the production of original equipment manufacturing, iBASE Technology Inc. was created by engineers with experience in industrial PCs. The company produces single-board computers, industrial motherboards, CPU modules, embedded systems, network appliances and digital surveillance systems for different applications in the gaming, entertainment, automation, medical, military, networking and security markets.