ACHIEVING PANORAMIC MULTIMEDIA IMMERSION WITH AMD EYEFINITY FOR DIGITAL GAMING AND DIGITAL SIGNAGE

Advanced multi-monitor video and graphics versatility delivers stunning visual experiences
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Today's digital gaming and digital signage system designers are afforded more resources and flexibility than ever before to deliver stunning, ultra-immersive HD visual experiences for a wide range of gaming and signage applications. Whether the goal is to entertain, promote, or inform, high-performance, low-power processing platforms and advanced supporting technologies are facilitating a new era of digital display versatility, transforming the way we consume and interact with visual media in casino, gaming and retail environments.

But many designers remain challenged to unlock the full promise of multi-display gaming systems and signage, and are therefore limited in their ability to transcend conventional ‘single screen’ visual experiences in favor of panoramic, ‘surround sight’ display configurations. AMD’s Eyefinity technology is helping designers overcome this challenge with minimal design complexity, facilitating new and innovative digital display capabilities that engage users and grab the audience’s attention.

**WHAT IS AMD EYEFINITY?**

The ability to support multiple independent display outputs simultaneously is a critical requirement for realizing ultra-immersive video displays for digital gaming and signage systems. AMD Eyefinity technology can enable a single AMD Embedded R-Series accelerated processing unit (APU) or AMD Radeon™ E6760 or E6460 discrete GPU to support multiple independent display outputs simultaneously, delivering an intense multimedia experience. With AMD Eyefinity multi-display technology, system designers can connect several high-resolution displays, flexibly configured in various combinations of landscape and portrait orientations, to achieve a large integrated display surface that enables windowed and full-screen 3D applications, images and video to span across multiple displays as one visual plane. Designers can also utilize AMD Eyefinity to architect multi-display configurations that present unique multimedia content on each individual screen.

**AMD EYEFINITY FOR MULTI-DISPLAY DIGITAL GAMING AND DIGITAL SIGNAGE APPLICATIONS**

Here we’ll explore two of the core target applications for AMD Eyefinity that are driving the pace of digital display innovation: digital gaming and digital signage.

**Digital Gaming** – Recognizing the visceral, seemingly irresistible attraction of highly immersive, multimedia gaming systems, the digital gaming industry has embraced the newest generation of richly interactive, visually-driven slot machines, non-slot casino games, arcade games, amusement with prize (AWP) systems, video/lottery terminals (VLTs), and pachinko/pachislot systems. Designed to grab and retain players’ interest in ways that more static, traditional gaming platforms simply can’t, these systems can deliver stunning multimedia entertainment that enthralls users and entices them to spend their money – no simple feat. The ability to support multiple independent game screens simultaneously from a single processing platform has emerged as a key requirement for digital gaming systems. Today, dual-screen games are the norm for high-end casino gaming systems. But three-screen machines – which often feature ‘topper’ overhead screens for multiplayer interaction – and even four-screen machines are quickly emerging as a popular option. And as digital gaming systems grow increasingly sophisticated, visually immersive multi-display configurations spanning four screens and beyond will become more prevalent.
Digital Signage – The battle for consumer pocketbooks is intensifying in retail environments, where the product brands that most effectively command shoppers’ attention are best positioned to command their spending. By bringing rich multimedia digital displays to high-traffic shopping locales, retailers can more effectively promote their products and drive sales. New ‘smart display’ technology, which can incorporate integrated cameras for capturing movement and gestures, promises to make future retail displays all the more interactive.

But the plain video, bland two-dimensional graphics and simple scrolling text that currently dominates the digital signage landscape is no longer effectively catching the attention of consumers who have become accustomed to high-definition video and 3D graphics in their home media experience. With multi-display digital signage systems, retailers are enabled to immerse shoppers with visually-arresting promotional content that stands out from conventional static and/or single-screen signage systems.
HOW AMD EYEFINITY WORKS

AMD Eyefinity is enabled by two or more display outputs operating simultaneously and independently from each other, depending on the processing platform. Support is available for Duplicated (Clone) and Extended multiple monitor modes, with support for the capability to group displays into a single large surface spanning across multiple displays. AMD’s support for multiple displays works with applications that support non-standard aspect ratios, which is required for panning across multiple displays.

AMD Eyefinity technology is closely aligned with AMD’s DisplayPort implementation, providing the flexibility to configure up to two DVI, HDMI™, or VGA displays in combination with DisplayPort outputs for the possibility of up to six monitors, depending on the underlying processing platform. The Video Electronics Standards Association’s (VESA) royalty-free DisplayPort connectivity standard is built upon a micro-packet architecture that enables the ability to address and drive several displays through one DisplayPort connector, a feature commonly referred to as daisy-chaining. Where DVI and HDMI both require a dedicated clock source for each display, DisplayPort only requires a single reference clock source to drive as many DisplayPort streams as there are display pipelines in the processing platform, yielding incredibly efficient multi-display digital game and digital signage system designs.
AMD EMBEDDED PROCESSOR PLATFORM SUPPORT FOR AMD EYEFINITY

AMD Embedded R-Series APUs – AMD R-Series APUs combine power-efficient, high-performance x86 processing with exceptional integrated graphics performance and high-performance parallel processing support, bringing together a low-power CPU and a discrete-level GPU on a single die with a high-speed bus architecture to deliver an outstanding HD visual experience. This integration of general purpose, programmable scalar and vector processor cores for high-speed parallel processing establishes a new foundation for high-performance multimedia content delivery. Digital gaming and digital signage system designers utilizing AMD R-Series are equipped to power up to four displays simultaneously (the number and type of displays may vary by board design). With AMD Eyefinity, AMD R-Series APUs can drive multiple displays simultaneously as independent displays or as a single large surface. By adding an AMD Radeon Embedded 6000 Series discrete graphics processor or card to the system, the number of supported independent displays can increase to six. AMD Dual Graphics technology can combine the processing power of AMD R-Series APUs and AMD Radeon Embedded 6000 Series GPUs to more than double graphics performance compared to using discrete graphics alone.

AMD Radeon E6760 Discrete GPUs – AMD Radeon E6760 GPUs help enable an exceptional entertainment experience with immersive desktop-caliber 3D graphics and outstanding multimedia features. The advanced 3D graphics engine and programmable shader architecture support Microsoft® DirectX® 11 technology for superior graphics rendering, and the third-generation unified video decoder enables dual HD decode of H.264, VC-1, MPEG4 and MPEG2 compressed video streams. Digital gaming and digital signage system designers utilizing AMD Radeon E6760 GPUs in combination with AMD Eyefinity are equipped to power up to six displays simultaneously.

AMD Radeon E6460 Discrete GPUs – AMD Radeon E6460 GPUs deliver entry-level graphics, multimedia and compute performance for value-sensitive embedded applications, featuring 3D graphics capabilities, programmable shader options, and support for Microsoft® DirectX® 11 technology and OpenGL 4.1 for graphics rendering. The unified video decoder enables dual HD decode of H.264, VC-1, MPEG4 and MPEG2 compressed video streams. Digital gaming and digital signage system designers utilizing AMD Radeon E6460 GPUs in combination with AMD Eyefinity are equipped to power up to four displays simultaneously.

Leveraging AMD Embedded R-Series APUs and/or AMD Radeon E6760 or E6460 GPUs, system designers can take advantage of AMD Eyefinity technology to achieve outstanding gains in video and graphics immersion, yielding versatile, high-performance digital gaming and digital signage systems that enthrall gamers and entice consumers.

ABOUT AMD
AMD is a semiconductor design innovator leading the next era of vivid digital experiences with its groundbreaking AMD Accelerated Processing Units (APUs) that power a wide range of computing devices. AMD Embedded Solutions give designers ample flexibility to design scalable, x86-based, low-cost and feature-rich products, and drive energy conservation into their systems without compromising application performance or compatibility, graphics performance or features. For more information, visit www.amd.com/embedded.
DISCLAIMER
 AMD Eyefinity technology works with applications that support non-standard aspect ratios, which is required for spanning across multiple displays. AMD Eyefinity technology can support up to four displays using a single enabled AMD R-Series APU or up to six DisplayPort displays using a single enabled AMD graphics card with Windows Vista® or Windows® 7 operating systems – the number and type of displays may vary by board design. To enable more than two displays, or multiple displays from a single output, additional hardware such as DisplayPort-ready monitors or DisplayPort 1.2 MST-enabled hubs may be required. Maximum two active adapters supported. See www.amd.com/eyefinityfaq for full details.

SLS (“Single Large Surface”) functionality requires an identical display resolution on all configured displays.