

VESA Publishes Embedded DisplayPort Standard Version 1.5

eDP 1.5 adds new features and protocols, including enhanced support for Adaptive-Sync, that provide additional power savings and improved gaming and media playback performance



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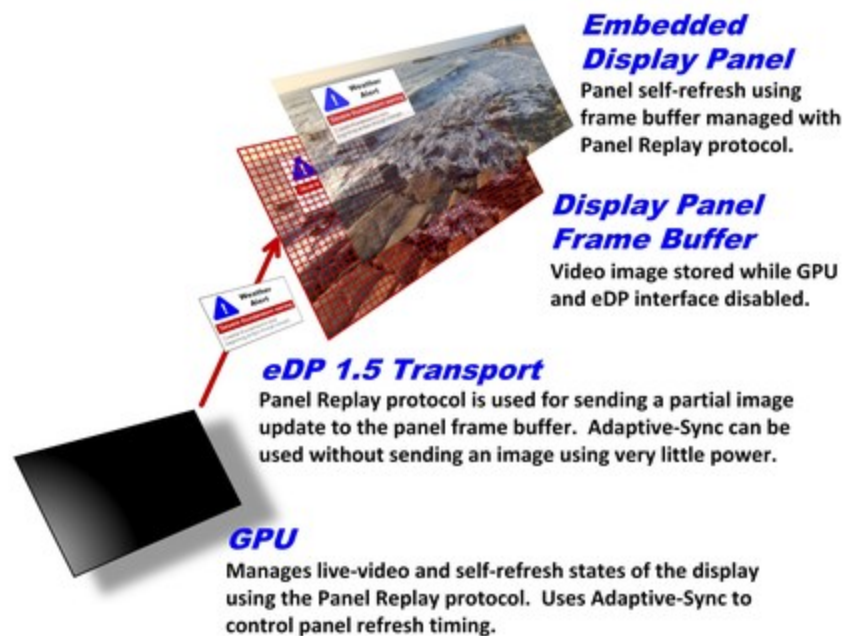
Video Electronics Standards Association (VESA) →

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BEAVERTON, Ore., Oct. 27, 2021 /PRNewswire/ -- The Video Electronics Standards Association (VESA®) announced today that it has published the Embedded DisplayPort (eDP) Standard version 1.5. Replacing eDP 1.4b, published in 2015, eDP 1.5 retains all key features of the previous specification while adding additional capabilities and performance. These include an improved panel self-refresh protocol coupled with enhancements to VESA's Adaptive-Sync protocol, a combination that results in added power savings and improved motion image quality.

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Embedded DisplayPort (eDP) version 1.5 leverages a new Panel Replay protocol for enhanced panel self-refresh capability. During self-refresh, the GPU and eDP 1.5 interface enter a low state to conserve system power and extend battery life. The use of Panel Replay enhances display timing control making it compatible with Adaptive-Sync, simplifies panel control protocol, and enables further power savings.

For devices such as laptop PCs with an embedded display, eDP is the electrical interface for transporting video data from the system's graphics hardware to the internal display panel. eDP is widely adopted for larger, higher-resolution displays as it provides the highest resolutions, refresh rates and color depths using a low wire count with low EMI radiation. Enhancements to the eDP standard have continued since its introduction more than 10 years ago, thanks to contributions by major OEMs through the VESA organization. eDP applications include laptops, all-in-one PCs, premium tablets, automotive displays, and other systems that incorporate a display panel with a video or graphics video source.

Improving power optimization

As with the previous spec version, eDP 1.5 supports panel self-refresh, a key power-saving feature in the standard. With panel self-refresh, static screen images are stored in the display memory while other parts of the system enter a low-power standby state. The system can momentarily awaken to update all or part of the display as needed. This offers significant power savings in typical PC or tablet usage applications. The panel self-refresh function was further optimized in eDP 1.5 with the addition of an enhanced Panel Replay protocol that provides even more power savings as well as improved display performance, including compatibility with Adaptive-Sync.

Other new protocols developed for eDP 1.5 include the ability to disable the display interface during normal operation (when not using panel self-refresh) during the vertical blanking period, which provides added power savings. eDP 1.5 also adds protocol support for new panel types, such as certain organic light emitting diode (OLED) panels, that feature extended display persistence and, thus, low refresh capability, without the need for a frame buffer.

Improving gaming and media playback performance

While eDP has long supported Adaptive-Sync for power saving and frame rate control for gaming, eDP 1.5 adds new Adaptive-Sync capabilities. For the playback of movies or video streaming, a new protocol was added to allow small frame rate adjustments to prevent skipping or repeated frames. For panels with a wide frame rate capability deployed in gaming systems, new mechanisms were added to reduce display flicker.

As with the previous spec version, eDP 1.5 continues to support the utilization of VESA's DisplayHDR and DisplayHDR True Black specifications – bringing vivid, life-like high dynamic range (HDR) content with the high color and contrast accuracy assured by these standards to embedded display applications.

According to Roland Wooster, chairman of the VESA task group responsible for DisplayHDR, and the association's representative from Intel Corporation for HDR display technology, "Intel is excited about the benefits that eDP 1.5 bring to laptop customers. For premium laptops, eDP 1.5 introduces support for simultaneous usage of both Adaptive-Sync, used to enable jitter-free video playback and lower latency gaming, and panel self-refresh, used for significant power saving. For more cost-sensitive laptops without the remote frame buffer required by panel self-refresh, eDP 1.5 achieves power saving by enabling the GPU to briefly power down between frames, which combined with the capability to adjust the frame rate based on workload, allows for additional power saving opportunities. We look forward to the increased battery life this will enable across a broad spectrum of laptop PCs."

"Embedded DisplayPort has become the de facto video standard for larger embedded displays, particularly at resolutions of 1080p or higher, with adoption among virtually all laptops, notebooks and premium tablets," stated Craig Wiley, senior director of marketing at Parade Technologies, VESA board member, chair of multiple VESA technical committees, and editor of the eDP standard. "Being a collaborative development effort involving system and component vendors, this latest update of eDP is aligned with the future direction of graphics processors and display capabilities. Furthermore, having this take place within VESA allows eDP to leverage the technology, IP, and familiarity of other VESA standards including



DisplayHDR and Display Stream Compression (DSC) as well as various DisplayPort protocols including Adaptive-Sync, Panel Replay, and DisplayID. eDP can then also leverage the same SoC video interface used for external displays, while providing special embedded display protocols to greatly extend battery life."

About VESA

The Video Electronics Standards Association (VESA) is an international, non-profit standards association representing a global network of more than 300 hardware, software, computer, display and component manufacturers committed to developing and promoting the electronics industry. For 30 years, VESA has created and supported simple, universal and cross-product solutions for today's video and electronics industry. The association's standards include DisplayPort™, the industry replacement for DVI, LVDS and VGA. DisplayPort utilizes a state-of-the-art digital protocol and provides an expandable foundation to enable astonishing digital display experiences. For more information on VESA, please visit

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