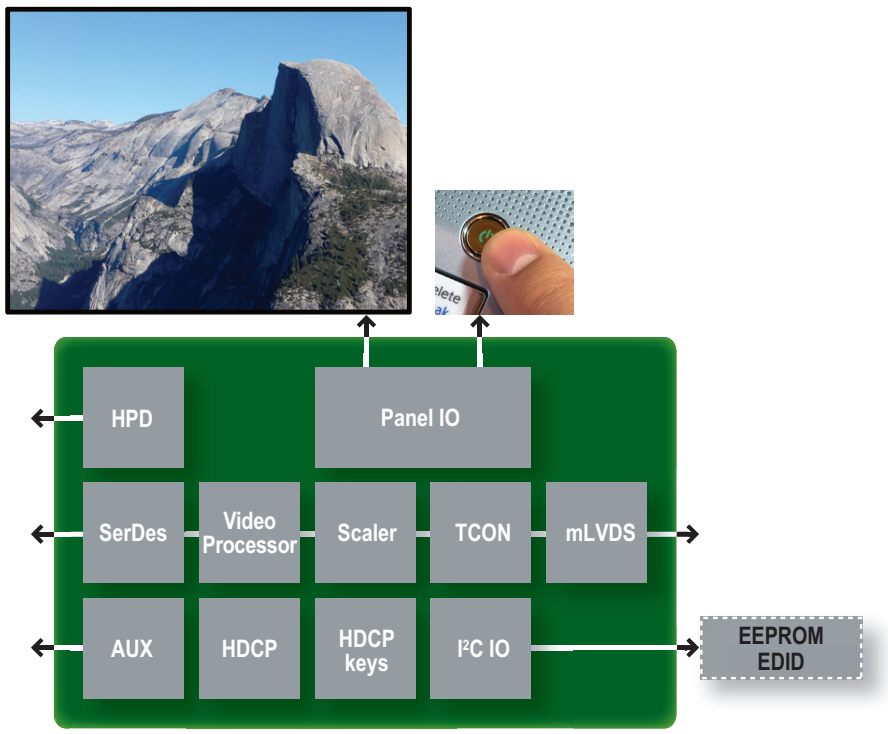
Design tip: Quick Guide to DisplayPort™

DisplayPort™ is a full digital video interface standard that is aimed at replacing LVDS as the internal interface of choice and replacing DVI/VGA as external interfaces. It uses a micro-packet-based architecture with an embedded clock vs. the traditional sequential data stream with separate clock and data, which is commonly seen in LVDS, DVI and VGA interfaces.

Description

In addition to the main video data, the DisplayPort-based micro-packets can also carry secondary digital audio data and enable unique features, such as multi-display and multi-monitor support. DisplayPort's main data channels can be configured into 1, 2 or 4 high-speed SerDes lanes, with each lane providing 2.7 gigabits (Gbps) or 1.62 Gbps. The total bandwidth of up to 10.8 Gbps is allowed within the standard. Depending on the resolution size you want to support, the number of lanes can be minimized. With next-generation DisplayPort 1.2 looming, that bandwidth will be essentially doubled. This all happens while keeping a consistency of connector, cable and full backward compatibility and without fragmenting of existing or future DisplayPort standards.

Block Diagram of a Typical DisplayPort Receiver



Additional features

The DisplayPort interface also includes a Hot Plug Detect (HPD) signal that is used to establish the link as well as to identify when a monitor is plugged into a PC. The HPD signals the source to establish a link through a process called link training. During this process, the source and receiver will also establish whether all of the four lanes are required.

Unique to DisplayPort is the Auxiliary (AUX) channel, which is a slow speed “side channel” communication channel for link management, status, configuration and control by the source. The AUX channel provides 1 Mbps of data with next-generation features to encapsulate the USB 2.0 standard and enable bi-directional video and audio communication.

For more information on DisplayPort, IDT PanelPort™ DisplayPort-based solutions, or on any of the wide variety of IDT video and display solutions, visit www.IDT.com/go/DisplayPort

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