

DisplayPort Overview and Benefits

Introduction: This document provides an overview of DisplayPort technology including benefits, capabilities, and performance.

What is DisplayPort?

DisplayPort is a new display connectivity developed to create a digital interface standard that will provide a high-performance feature-rich alternative to DVI and HDMI. DisplayPort is intended to be a successor to VGA. DisplayPort provides support for high-resolution displays, digital content protection, and the addition of new features to the standard. It was also designed to be fully interoperable with current display interfaces while providing enhanced performance in comparison to VGA.

Figure 1. DisplayPort Connector



The DisplayPort connector is similar in size to a USB connector, allowing for efficient use of rear panel space, and is easy to connect without thumb-screws.

Table 1. Display Connectivity Performance Comparison

	Link Capacity	Maximum Cable Length	Maximum Resolution	Maximum Color Depth
DVI-D	3.96 Gbit/s	5 meters	1920x1200 @ 60Hz, 24bpp	24bpp
DVI-D Dual Link	7.92 Gbit/s	5 meters	2560x1600 @ 60Hz, 30bpp	48bpp
HDMI	10.2 Gbit/s	15 meters	2560x1600 @ 60Hz, 30bpp	48bpp
DisplayPort	10.8 Gbit/s	15 meters	3840x2160 @ 60Hz, 30bpp	48bpp

Why not use DVI or HDMI?

DVI is the digital interface of choice in most modern commercial displays, but it is unsuitable as a VGA replacement for a number of reasons. The connector is large and thumb-screws are not user-friendly. There is a 5 meter limit to cable length. There can be confusion between DVI-A, DVI-I, DVI-D, and DVI-D dual-link cables, and different cables are needed to support different display sizes. There is no support for audio over the DVI cable. Finally, as there is no active standards body governing DVI, there is no future development or enhancement that can be done.

HDMI is a standard in home audio and video electronics, and it provides audio support and content protection with a small connector. However, it is controlled by a consortium of consumer electronics companies imposing a royalty fee structure that is unacceptable to the computer industry, while DisplayPort does not.

What are the benefits and features of DisplayPort?

- The connector is smaller and doesn't require the use of thumb-screws
- Support for cables up to 15 meters long
- 10.8 Gbit/s capacity with planned higher data rates available through future updates
- Support for audio and other data types
- Digital content protection (HDCP)¹
- 30-bit color capability
- High resolutions including support for 30" diagonal displays with a single cable
- Extensibility for addition of future performance benefits and features
- Interoperability with VGA, DVI, and HDMI

¹ HP provides HDCP support on all shipping DisplayPort outputs.

