Nature Understands The Need For Multiple Views

Your guide to the various display output options & the proven benefits of multiple screens.

AMD RADEON PRO

Multiple screens bring efficiency

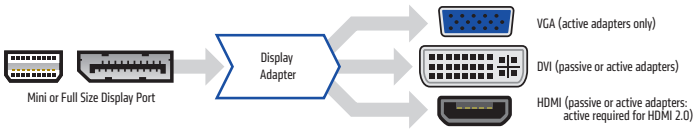
Multiple monitor setups are already the standard within many industries like Video Editing, Finance and Medical, but many other professions are only starting to appreciate the efficiency and productivity benefits of more displays. There have been countless reports over the years into the advantages associated with adding additional monitors.

Setting up a second monitor is surprisingly straightforward. This document aims to explain some of the considerations, and further simplify the terminology and technologies used.

At AMD, we don't make monitors, but we do feel that everyone should have at least a dual-screen setup for increased productivity and efficiencies. There is no reason to waste time juggling and resizing application windows on one screen during that next project.

Compatibility

At the heart of AMD graphic cards (GPUs) is the desire for compatibility and openness. Although our GPUs are typically equipped with DisplayPort™ connectors, other connections are supported via adapters. There are two types of display adapters: passive and active. A passive adapter only changes the connector form factor, relying on the GPU for signal conversion. Active adapters contain an integrated circuit for signal conversion, while the GPU continues to output a standard DP signal. Both adapter types offer advantages, so the choice depends on your needs. Passive adapters are normally less expensive, while active adapters typically offer more signal conversion capabilities and can be required with very large quantities of displays.



What is DisplayPort?

DisplayPort™ (DP) was designed to replace legacy interfaces like DVI and VGA. An important benefit of DP over older interfaces is the ability to drive multiple monitors at a time, over a single port on the source device. This feature is known as Multi-Stream Transport (MST), and can be used to expand the number of displays in a workstation setup with minimal cable clutter. This feature has been referred to as "daisy chaining". While the exact number of driven displays by a single DP port is dependant on monitor resolution and refresh rates, a general rule is four independent 1080p displays can be supported via one DP connector on the graphics card. Utilizing monitors of differing resolutions and sizes can be used to optimize the work environment and work flow.

DisplayPort

My home TV uses HDMI, why not just use that?

Apart from physical connector differences, there are technical differences between DP and HDMI™. Introduced in 2003, HDMI has been the standard for home entertainment, and while some PC devices include HDMI connections, most AMD professional GPUs offer DP for versatility. In 2006 DP was introduced bringing common signalling technology, allowing for a robust stable link. DP also typically features a locking mechanism on the connector preventing accidental unplugging. In terms of image quality there is practically no difference between the two standards, with both supporting modern video stream formats. The current spec of DP 1.4 supports today's latest high resolution video and advanced audio formats.

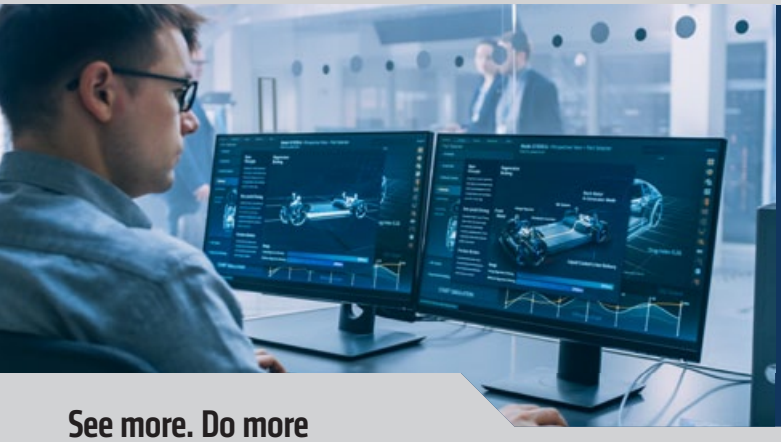
HDMI™ HIGH-DEFINITION MULTIMEDIA INTERFACE

But what about USB-C?

AMD RADEON PRO

THE RADEON PRO W5700 GPU WITH FIVE MINI-DP & ONE USB-C OUTPUT.

USB Type-C™ is a versatile digital interface that can drive standard data transfers as well as carry video signals over the compact connector. Using a feature called "DisplayPort Alternate Mode", devices such as monitors can connect to supported computers via USB-C™ instead of traditional DP connectors. AMD was the first graphics company to introduce DisplayPort Alternate Mode via USB-C for desktop workstations. Recently, some monitors and VR headsets have adopted USB-C with DisplayPort Alternate Mode as their input interfaces.



Display resolution support

All Radeon™ Pro GPUs support DP 1.4, offering modern ultra-high monitor resolution access, such as 8K UHD (7680x4320pixels) and High Dynamic Range (HDR). Depending on the GPU model, it can be equipped with standard DP, Mini-DisplayPort (mDP), or a combination. Although both connector types are functionally equivalent, mDP enables higher connector density and depending on the monitor may require an adapter or mDP-to-DP cable.

See more. Do more

Professional users are expanding working screen areas across multiple screens bringing increased productivity and other workflow benefits. For GPUs this can add extra strain. Enter AMD Eyefinity technology which allows two or more displays to be combined into a single large desktop screen area. When combining displays the desktop workspace and resolution increases with the number of displays in the group, with each display showing a desktop portion. The final resolution is the horizontal and/or vertical sum of the individual monitors. For example: Three 1920x1080 displays arranged in a horizontal 3x1 mode would create a desktop screen area of 5760x1080 pixels for AMD professional graphics users.

amd.com/EyefinityFAQ

Greater monitor color accuracy

High Dynamic Range (HDR) offers brighter highlights and larger color range detail. This technology is common within consumer streaming services offering HDR shows and movies, but is particularly important for modern rendering and image editing projects. There's a number of HDR formats, but the common benefit is greater color accuracy on compatible screens. While more pixels are often seen as the most important consideration, color accuracy is actually more crucial for ensuring how your screen colors resemble the natural world.

All Radeon™ Pro GPUs support HDR via DP 1.4 as standard.

DISPLAYPORT CABLE CONNECTOR.

USB-C TYPE CABLE CONNECTOR.

RECENT STUDIES SUGGEST UP TO
33% Less Errors
REPORTED WITH DUAL MONITORS[1]

RECENT STUDIES SUGGEST UP TO
48% Users Recommend
DUAL MONITORS[1]

THE RADEON PRO VII GPU WITH SIX MINI-DP OUTPUTS.

Better pixels on your screen

By now you've seen there's a lot to consider when selecting a screen and GPU, as well as more pixels doesn't mean better pixels. Many real-world professional applications, such as medical imaging or design software, also require pixel accurate results every time. AMD Radeon™ Pro Image Boost allows Radeon™ Pro GPUs to render a higher resolution and then scale down to your lower native display resolution, helping improve sharpness and clarity[2]. Improved image quality means better screen information is available for making decisions.

amd.com/RadeonProImageBoost

[1] Source: https://collections.lib.utah.edu/details?id=214166
[2] For full details, see https://www.amd.com/en/technologies/radeon-pro-software-image-quality

To learn more about AMD professional graphics visit:
amd.com/RadeonPro

AMD