



HP 4K UHD Displays

Explaining Ultra High Definition (UHD), and why it matters.



What is High Resolution?

A clearer, crisper and easier to read display. In short, 4K UHD is a more densely packed screen, allowing for a larger number of pixels. Due to the additional pixels, 4K displays can show up to 4x more data than Full HD displays. Larger data sets can be viewed simultaneously, complete full-resolution photos, or large-scale CAD files can now be seen completely without sacrificing clarity to do so. That can mean a significant boost in productivity, paired with easier readability making for impressive views. Text and images on UHD screens are now more like a printed page than a screen full of large pixels. Crisp text is now shows smooth edges, and images show fantastic detail and clarity.

These advantages lead to better decision making and a higher quality of work for professionals in fields including digital media, image analysis, product development, and more. With the detailed presentation of graphics, extraordinary color, and flexible connectivity, HP's offering of 4K UHD displays will help you see more so you can do more—and do it better.

Increasing Resolution

As resolution (the number of pixels on a screen) increases, more data can be shown on the screen. Allowing application windows to be placed side by side rather than stacked on top of one another – data is easier to refer to, quicker to analyze and means current projects aren't lost under new windows. Text can also be adjusted in the operating system to be larger or smaller without sacrificing readability for smaller text.



Full HD example shows larger pixels and lacks clarity



4K example shows increased clarity and additional screen space

Increasing Pixel Density (PPI)

Every electronic screen is made up of pixels (think of them as blocks) stacked together in a grid. When a display is said to be 3840 × 2160 (4K) resolution, that means there are 3,840 pixels (blocks) wide, and 2,160 pixels high. This is true for a 27-inch diagonal 4K Display, or a 55-inch diagonal 4K Display or any size display—the resolution is consistent regardless of the screen size.

However, this means that each pixel must be much smaller to fit in the 27-inch diagonal display, rather than the larger 55-inch diagonal. This density is measured in pixels per inch (PPI). As the number of pixels per inch increases, so does the clarity of the display. See the photo of the lion above as an example. A significantly larger number of pixels make up the right image (higher PPI) versus the left image (lower PPI)—as evidenced by the larger pixels that can be physically seen in the left image. The density of the pixels has increased, so the clarity of the photo has increased in turn, as well as providing additional room for the image (or data in other instances).



Smaller 4K screen
Increases clarity

Text and images become clearer and more sharp as the resolution rises, allowing for fantastic clarity and image viewing.



Larger 4K screen
Shows more data

With a higher PPI the amount of data visible on the screen increases allowing users to see more on the screen at one time.

How 4K Compares

HD (High Definition)

A resolution of 1280 × 720 pixels in a 16:9 aspect ratio is defined as HD.

Full HD (Full High Definition)

The most common step up from HD resolution in HP's Commercial Displays lineup. Full HD at 1920 × 1080 offers a fantastic productivity upgrade from HD displays and is the highest resolution used for broadcast television.

QHD (Quad HD)

QHD offers a more detailed view, having four times the vertical resolution of standard 720p HD. And while the name might make it sound like the equivalent of 4K, its resolution at 2560 × 1440 pixels (and a 16:9 aspect ratio) is actually much less.

4K

4K displays have a resolution of 3840 × 2160 in an aspect ratio of 16:9, which is four times the Full HD resolution of 1080p.

Cinema 4K

Motion picture theaters use a wider frame than standard 4K UHD with a resolution of 4096 × 2160, in a 17:9 aspect ratio.

Higher Resolutions

Although 5K and 8K exist today, most developers are preferring 4K for software development and programming. As part of our innovation backbone, HP will continue to investigate higher resolution and create products that will meet the market's needs.

	HD	Full HD	WUXGA	QHD	UWQHD	UWQHD+	4K UHD	Cinema 4K
Resolution	1280 × 720	1920 × 1080	1920 × 1200	2560 × 1440	3440 × 1440	3840 × 1600	3840 × 2160	4096 × 2160
Aspect Ratio	16:9	16:9	16:10	16:9	21:9	21:9	16:9	17:9

Who benefits from 4K displays

When your work depends on noticing the details and making keen observations, you can't beat the sharpness of 4K UHD displays. A few examples of industries that see major benefits from these displays include:

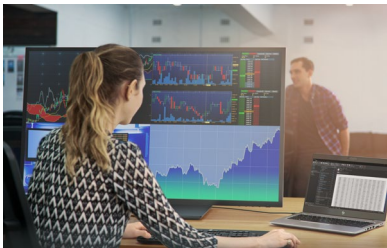


Digital media

It's clear that 4K is quickly becoming the new standard in digital media. The major advantage of recording video in 4K is its superior resolution and fine spatial detail. From films and streaming video to photography and video game development—if it's not created in 4K, it will be soon. This means that animators, editors, and post-production staff who work in 4K, get better results. The improved detail and accurate color throughout the workflow results in a more impressive finished product.

Image analysis

Professionals who analyze images even down to the pixel are constantly having to make important decisions and reach conclusions based on the content they see. The additional screen real estate and enhanced detail, coupled with a higher bit depth/range of color, meaning that 4K displays provide a greater amount of information and accuracy on which to base an analysis. For example, petroleum engineers scouring hi-res maps for underground oil deposits can make major decisions on investments and purchasing rights more confidently, thanks to the sharp image clarity.



Financial Sectors

Financial sectors make the most of 4K UHD on large displays. Relying on the extra screen real-estate offered by high resolutions they are able to compare information side-by-side when making quick & time-sensitive decisions. Whether displays are tiled together for maximum resolution, or multi-display setups with lower resolution displays are being replaced with a large 4K display, investors and analysts will find numbers easier to read, and charts in exact detail.

Software development

The growth in high-resolution mobile devices creates opportunities for application and software developers to utilize 4K displays to enhance their applications. The added screen real estate allows software developers to work with more lines of code than on a Full HD display while also having the ability to emulate the device display's native resolution—all on 4K HP Displays.

These are just a few examples of industries that benefit from UHD displays. If your workflow requires superior resolution of fine spatial detail, accurate color, additional screen real estate or sharp image clarity, you too can benefit.

Compatibility

When you have the potential to enjoy the true vividness of 4K right in front of you, you'll want to make sure you're experiencing it fully. 4K resolutions work best when certain software versions and components are in place.

Software requirements to support high pixel density

To better experience UHD 4K, it is beneficial to work with PPI-aware operating systems (OS) and/or applications. PPI (pixels per inch) measures the sharpness of images on a display. PPI-aware operating systems and applications will recognize that a high-DPI display is attached and ensure that proper resources are loaded to take advantage of the extra pixels, giving the user clearer images, as well as the ability to scale and size fonts and icons. If the OS or application is not DPI-aware and therefore does not recognize a high-PPI display, the images and icons might appear very small or fuzzy.

Hardware requirements to support 4K

The graphics card must be capable of supporting 3840 × 2160 @ 60 Hz to drive the display at the preferred mode. Most computers today are capable of driving a 4K UHD Display.

4K HP Displays

When you can see more, you can do more—and do it better. 4K HP Displays provide an incredible presentation of highly detailed digital workflows so you can enjoy crystal-clear views of your projects, documents, and media.

Experience extraordinary, precise color and see more of your projects at one time on a display with stunning 4K resolution.¹



HP Z43 42.5-inch 4K Display
3840 × 2160



HP Z32 31.5-inch 4K Display
3840 × 2160



HP Z27 27-inch 4K Display
3840 × 2160



HP DreamColor Z31x 31.1-inch Studio Display
4096 × 2160



HP Z38 37.5-inch 4K-wide Display
3840 × 1600



HP EliteDisplay S270n 27-inch 4K Monitor
3840 × 2160

1. Factory color calibration applies only to HP Z Displays. HP Z43 is not a color-calibrated display.
2. 4K content required to view 4K images.
3. HP Zero Bright Dot Guarantee applies only to HP Performance Displays. The HP Pixel Policy allows no bright sub-pixel defects for this display. For complete details, see support.hp.com/us-en/document/c00288895.
4. All performance specifications represent the typical specifications provided by HP's component manufacturers; actual performance may vary either higher or lower.

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