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# GAMING MONITOR BUYING GUIDE:

## 6 Specs To Look For

**Showroom / Pickup**  
Unit F3, 3-29 Birnie Avenue (off Bachell Ave)  
Lidcombe, NSW 2141, Australia



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Along with a gaming PC and powerful graphic cards, a gaming monitor is one of the important hardware products making the difference between winning and failure in gameplay. When playing sports, racing and especially fast-moving games like First Person Shooter (FPS), gamers generally do not give a good favour to a display monitor with blurred images, screen tearing, and other motion artifacts. Depending on personal preference, gaming needs and budget, the way people look for gaming monitor specs can be different from one to another.

This buying guide is going to give you an ultimate instruction what to look for when buying a [gaming monitor](#) that suits your individual gaming habits.

Please note that the listing is not in order of priority.

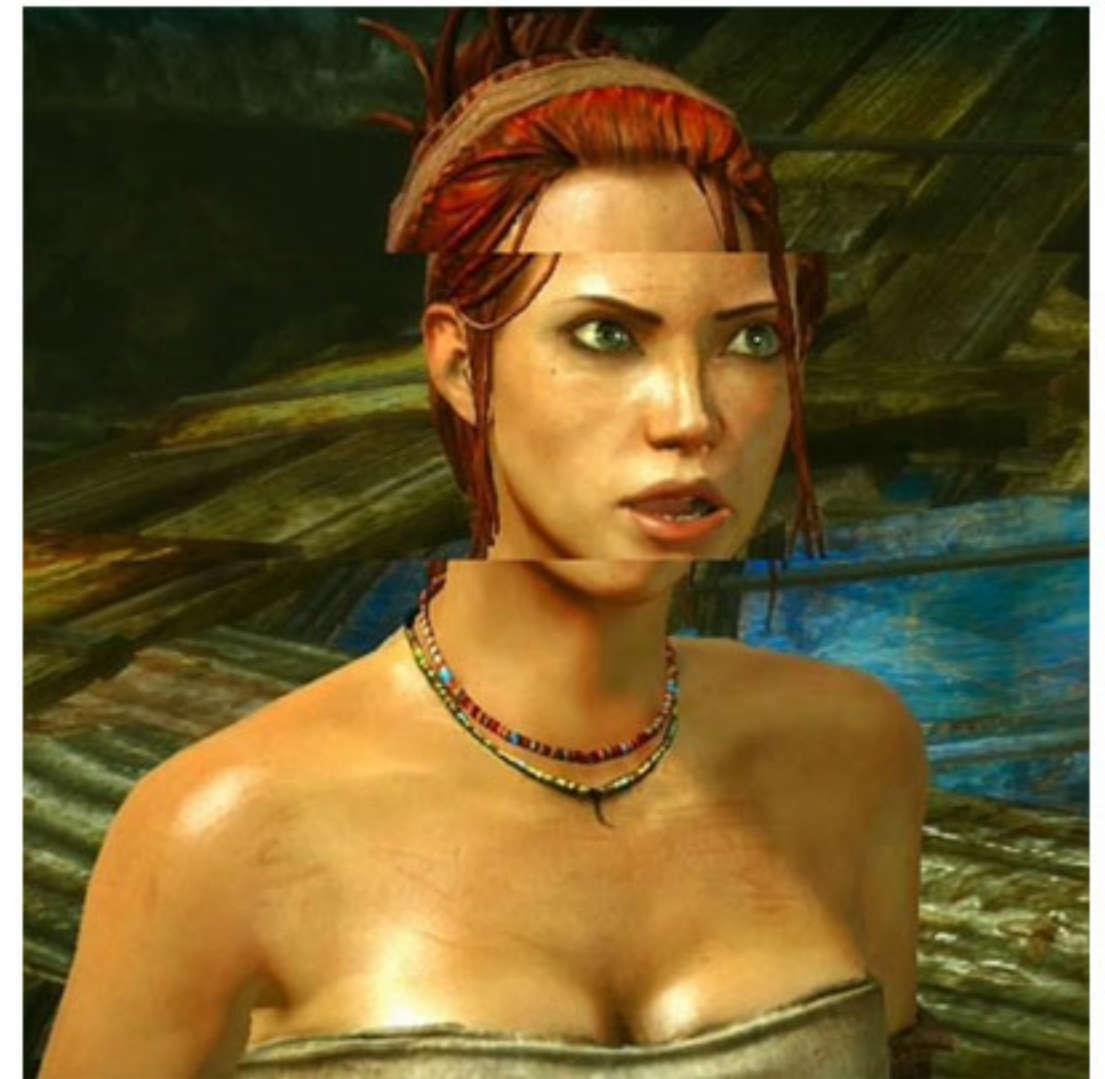
## 1. Refresh Rate

This rate tells you how many times per second it takes to refresh the entire screen and is measured in Hertz (Hz). If a monitor's refresh rate states to have 60Hz, it means that the screen is refreshed 60 times per second.

For casual gamers with a limited budget, the [refresh rate](#) should start at least 60Hz, which is applied in most LCD monitors nowadays.

However, this refresh rate is more likely just good for console games, as it is often outstripped when it comes to heavy graphic games in racing or shooting like Battlefield or Call of Duty. The low refresh rate tends to lead to image blurring and screen tearing consequences. That's why, for a more competitive edge, serious gamers attempt to use 120Hz or higher, so they can react faster than their opponents when combating online. Imagine that for every 60 frames that your opponent has exposed to, you have exposed to 120 frames with your 120Hz monitor, which helps you to be able to react faster. Keep in mind that the higher refresh rates your monitor displays, the smoother your gaming experience.

144Hz is currently the most common high spec and is ideally for super smooth gameplay. However, it is important to note that a 144Hz monitor critically requires special cables (i.e. HDMI 1.3, DVI-D and DP) and currently not supported by 4K resolution monitors.



Screen Resolution Difference



## 2. Response Time

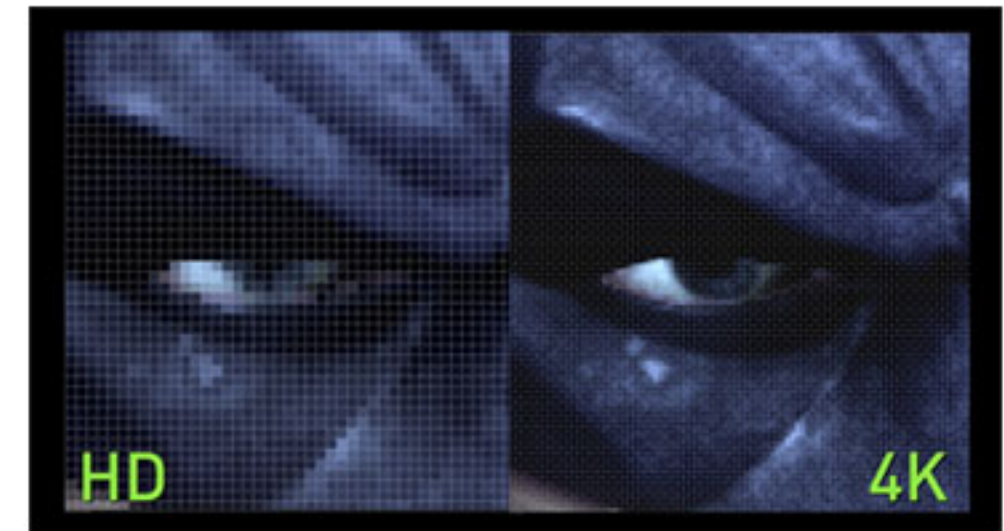
This metric refers to the speed at which a pixel can change colour in grey-scale performance. It is measured in millisecond (ms). Pixels with the correct colour is important when playing fast-paced games where players tend to move across different environments and look for the target with the right colour indicates.

In an ideal word, a response time of 1 or 2ms is what professional gamers aim for. They are also happy with anything under 5ms. Meanwhile, for those with casual needs, the time range should not exceed 10ms. Note that some manufacturers may not list the response time in their monitors.

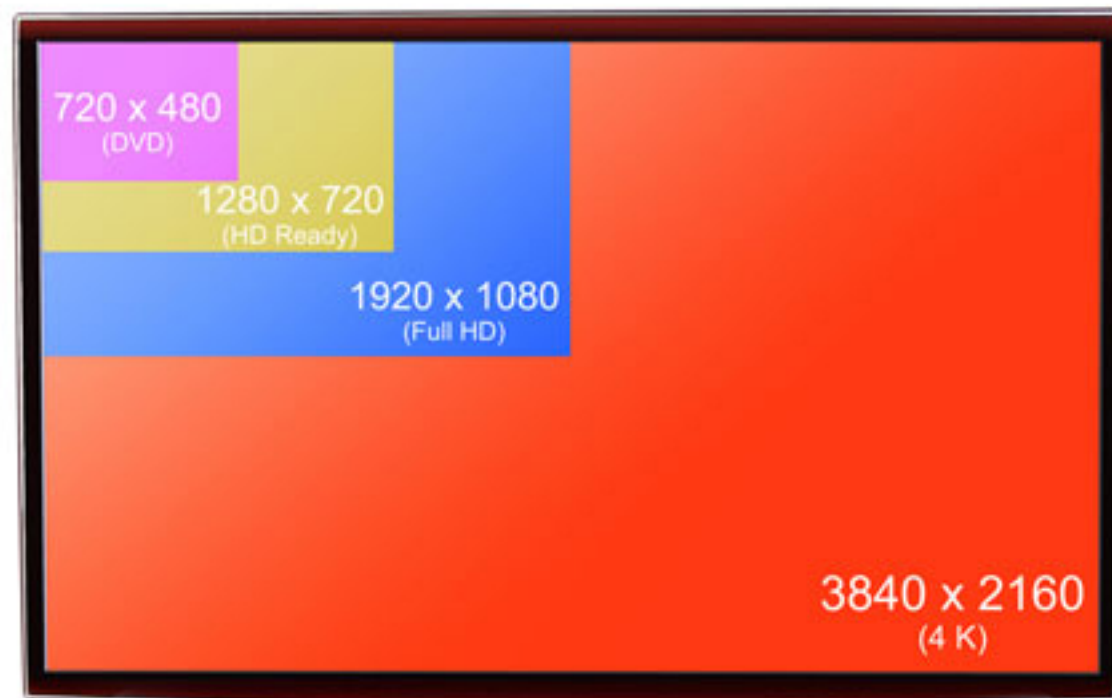
## 3. Resolution

A monitor's display resolution which is measured in pixels indicates image sharpness and details. In other words, if the resolution is too low, the image can be pixelated in which the squared spots become more visible. There are three common options available in the market:

- **1080 Full HD** (or 1920x1080 in the correct dimension) is for sufficient image quality
- **1440p WQHD** (or 2560x1440 in the correct dimension) is for excellent image quality
- **4K Ultra HD** (or 3840x2160 in the correct dimension) is for extraordinary image quality



Screen Resolution Difference



Screen Size

If you are someone who does not care much about how sharp the image is on screen, 1080 Full HD may be good enough for you. This 1080 Full HD normally offers a lower price than others, but it comes with a smaller screen and generally lower response time.

1440p WQHD seems to be the optimal option for most gamers, with a variety of brand names and an ongoing quality improvement in image details. Compared to Full HD, 1440p WQHD only requires slight hardware upgrades to pair with. This should not be a big deal, as most of the new hardware upgrades are capable for Wide, Quad High Definition (WQHD).

On the other hand, 4K UHD gives a wider and visually stunning image with significantly high contrast. In theory, this high-resolution monitor would be the ideal for gamers. However, in order to play in this 4k monitor, it requires a certain type of powerful graphic cards to render a frame rate at such high resolution; the price of those powerful extra cards can be really expensive. Thus, unless you can afford and you are a professional gamer with a serious interest in the latest games, 4k UHD is ways too much to invest.

Read more about monitor resolution [here](#).



## 4. Response Time

Basically, there are three main panel types with their own pros and cons.

### Twisted Nematic (TN)

- **Pros:** lowest price among the three panels with fast refresh rate and low response time
- **Cons:** low colour quality (contrast ratio 1000:1) with bad viewing angles, meaning the colour is distorted if you view from different degrees away from the screen's centre

### Vertical Alignment (VA)

- **Pros:** a wide spectrum of colours including deep black, making the colours less shifted when viewing from different angles. Also, VA monitors offer high contrast ratio of 2000:1 and 5000:1 and robust colours
- **Cons:** ghosting effects is the main disadvantage of VA panel, making the fast-moving images blurred for a while. Compared to TN panel, this one normally has higher response time and more expensive

### In-plane Switching (IPS)

- **Pros:** latest panel technology with the best viewing angles, best colour accuracy, best colour consistency and strong grey-scale performance. This panel is highly recommended for colour-critical works like video/photo editing, graphic works and even gaming.
- **Cons:** higher response times than TN panels and relatively subject to motion artifacts. IPS is also much more expensive than TN when it comes to price

So, when and which panel to choose?

Choose TN panel if you are under budget and just want to have the highest performance in refresh rate and response times for gaming experience; you don't worry much about the colour accuracy because you mostly sit in front of the screen anyway. However, when it comes to colour reproduction and bigger screen, VA would be a better option for you to watch movies and series on your screen. On the other hand, IPS is the best if you attempt to use your gaming monitors for professional works along with playing games. Even though the price is generally high, it is worth to invest in an IPS monitor to support other purposes than just gaming.

Check out our post to get more ["Expert tips to choose right monitor for Website Designing"](#).



Colour Shift From Different Viewing Angles



## 5. Input Lag

Input lag, or also called "Display lag", refers to the time it takes from the moment people click the mouse button to seeing it appear on the screen. This metric uses milliseconds (ms) to measure.

For casual gaming needs, any input lag time under 30ms is good to use. However, for the competitive edge, people aim for under 15ms or 10ms.

Besides the concern of the internet connection, high input lag is considered as one of the reasons leading to in calculated mistakes or mess-ups during gaming time. Although input lag is not a standardized metric for the monitor in general and it is not listed in the spec by manufacturers, we reckon it is relatively important for most gamers. That's why we mention it in this gaming monitor buying guide.

## 6. Adaptive-Sync

Similar with Input lag mentioned above, Adaptive Sync is not what people normally consider when buying display monitors, but it is critically necessary for gamers. The purpose of having the correct adaptive sync is to reduce the degree of image tearing and motion artifacts, supporting lower input lag to deliver better gameplay.

Adaptive Sync is a technology that is only managed by the two giants NVIDIA and AMD building specific G-Sync and Free-Sync modules respectively.

- **NVIDIA's G-Sync:** is an inbuilt hardware chip in the monitor during the production period. It is installed between the Graphics Processing Unit (GPU) and a scaler to get an adaptive refresh rate
- **AMD's Free-Sync:** is an open source to add more, using an integrated display controller to coordinate with GPU and monitor

Both G-Sync and Free-Sync have the similar performance, but G-Sync is relatively higher price than Free-Sync. It is because the monitor manufacturers need to buy a license from NVIDIA to be able to install the G-Sync module. Another difference between the two is about the compatibility. While G-Sync is compatible with most of GPU starting from GTX 600 and up, Free-Sync is only working with the newest GPU from AMD which has the integrated display controller.

Discover our great range of [NVIDIA](#) and [AMD](#) graphic cards that suit your individual needs!



## Summary

In general, there is not any one-size-fits-all or a perfectly standardized gaming monitor in this world. Depending on your budget and what is more important for individual gamers, the monitor you choose may be varied. If you put image quality as the priority, you may pay attention to the high pixel resolution and colour-critical panel types like VA or IPS. These two panels are also suitable if you play Single Player Gamers in which you just defeat with the game's characters and no need quick reaction; however, it may end up with lots of money if those monitors have fast response times. In other cases, if you prefer instant gaming reaction online and do not care much about colour accuracy, you probably want to keep your eyes on TN panel with quick refresh rate, low input lag and response times. In the bad side, unfortunately, TN panel may not be an ideal option if you play games in a group sitting together in front of the screen. One or a few of you who views from a different angle may not see the characters or colours incorrectly or even lose that. In this case, a wider span of a screen like IPS would be more beneficial.

## Top 3 Gaming Monitors

Now you know what to look for in a gaming monitor, it's time to find the one for yourself!

Here are the top 3 monitors that give you an excellent gaming experience with 1ms response time but are relatively affordable.



**BenQ ZOWIE XL2411**

24" FHD 144Hz LED LCD e-Sports Gaming Monitor



**BenQ ZOWIE XL2430**

24" FHD 144Hz LED LCD e-Sports Gaming Monitor



**BenQ ZOWIE XL2720**

27" FHD 144Hz LED LCD e-Sports Gaming Monitor



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