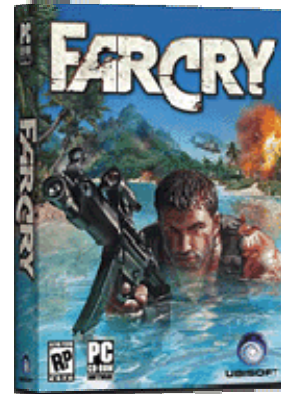


## Gaming Gear Checklist:

Most Tech Tips have focused on the business side of computer hardware, but all work and no play...

In this Tech Tip, we will look at some important considerations to make when selecting hardware for use in a computer that may need to work hard, but will need to play even harder. Today's fast-paced video games demand a lot of computing power and 'good' systems even a few years old just won't cut it. Buying the video game is the easy part, but making sure you have a system that can handle it is where things may get more complicated.

Far Cry (<http://www.farcry.ubi.com/>) is a popular action game from UbiSoft (<http://www.ubi.com/>) that is a perfect example of the demands placed on computers to make them run well. Their "System Requirements" page (<http://www.farcry.ubi.com/system.php>) lists the minimum specifications needed to play the game, as well as recommended specifications that will allow the game to run smoothly and look half decent. From the information provided on that page, it is clear that a computer from a few years ago may be able to play the game, but to really enjoy the game, you may need to buy more than just the game software.



## System Components

The core system components obviously play a major role in game play. As is the case with computer performance in general, faster and bigger are what you want in processors, memory, and hard drives to enhance the gaming experience. According to the Far Cry specifications, a processor with a speed greater than 2 GHz and 512MB or more of memory are recommended.



These system specifications may not be cutting edge, but they may be greater than those of many personal computers. Far Cry is just one example of many modern games requiring similar resources, and the average system just might not be up to the task.

Hardcore gamers (with the appropriate budget) might not flinch at dropping a few hundred dollars on new components hoping to squeeze just a bit more performance out of their system. The technology advances so quickly that an endless cycle of upgrades is possible if you feel the need to keep up. For the sake of this article, we will assume that some of the core components in your system are there for at least the foreseeable future, and that they are at least modern enough to consider for use with video games.

## Video

Video is no doubt the most important aspect to enjoying a video game. There may be many components behind the scene making sure that a crisp, clear image is provided for smooth game play, but all we care about is what is shown on the screen.

The first thing to consider here is the graphics card. Taking a look back at the recommended specifications for Far Cry, it can be seen that you'll want a fast graphics processor backed by 128MB (or more) of video memory. Systems using onboard video, or a PCI based video card, may do fine in desktop applications, but game play may be less than enjoyable. It used to be that 128MB of memory was a big deal, but now it is a fairly common base offering. High-end cards with 256MB or 512MB are readily available, even though some may argue that 128MB on a card with a fast processor may be enough.



PCI Express video cards are the latest and greatest, and for those with motherboards that support PCIe, the extra bandwidth coupled with a high-end graphics processor will provide the best performance. Systems supporting SLI (<http://www.slizone.com/content/slizone/index.html>) can take things to the extreme by harnessing the processing power of a pair of matching PCIe graphics cards for use on one display.



AGP cards still dominate in terms of popularity, and most chipsets found in the PCIe format will also be found in AGP format. The performance of AGP cards with the same high-end chipset as a PCIe card can be expected to be less, but still more than adequate for smooth game play. Taking a look at one manufacturer's website shows that both a PCIe (<http://www.rosewill.com/product/product.aspx?productid=154>) and AGP (<http://www.rosewill.com/product/product.aspx?productid=153>) version of an nVidia GeForce 6600GT are available with 128MB of memory. The 6600GT PCIe card, such as this one

(<http://www.geeks.com/details.asp?invtid=PCIE-OCT-FX6600GT128&cat=VCD>) at Geeks.com, is currently quite popular with game players, as it offers excellent performance at a price that isn't too outrageous.

Let's not forget the monitor. All the graphics processing power in the world is worthless without somewhere to see it. CRT monitors still dominate in terms of popularity for game players, but LCDs are making great strides.

The main issue to consider with LCDs is response time, which is a figure that should be provided



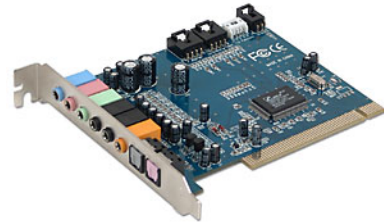
in the list of specifications. Presented in terms of milliseconds ("ms"), lower values are preferable as it indicates how quickly the image is updated. In fast-paced games, "ghosting" may occur on slower monitors due to the action being faster than the monitor can keep up with. Comparing this 17" TFT LCD from SVA (<http://www.geeks.com/details.asp?invtid=VR-17B-R&cat=MON>) to this one from Princeton (<http://www.geeks.com/details.asp?invtid=SEN-714-R&cat=MON>), shows that among other things, an extra \$25 provides a response time of 16ms on the Princeton versus 25ms on the SVA. The criteria for acceptability may be subjective and relative to the game being played, the person

playing it, and other system settings, but some may argue that LCDs with a response time of 16ms or less are best suited for game play. As the technology advances, LCD monitors with response times in the single digits are starting to show up, such as the 19" Viewsonic VX924 (<http://www.viewsonic.com/products/desktopdisplays/lcddisplays/xseries/vx924/>) with a response time of 4ms.

## Audio

The audio portion of video games plays a major role in the overall experience. Games are developed to take advantage of surround sound stereo audio, and the system the games are played on need to be able to share this with the user.

The first step is to make sure a sound card capable of properly reproducing the sound is available. Many modern motherboards include a 5.1 channel stereo sound processor onboard, but there are PCI card upgrades available for those who need it. Budget-conscious gamers can add something like this 7.1 channel sound card (<http://www.geeks.com/details.asp?invtid=A-8768-8C-N&cat=SND>) to their system, or if they have the money for it, they can add the extreme performance and features of the 7.1 channel Creative Audigy 2ZS Platinum (<http://www.geeks.com/details.asp?invtid=70SB035000003-DT&cat=SND>).



Once you have the sound card, you need a decent set of speakers to realistically duplicate the sounds of things like gun fire, explosions, and foot steps, as well as to indicate where the sounds are coming from. A set of surround sound speakers are necessary for distinguishing where approaching enemies are when out of your field of view, or to determine where distant gun shots are coming from. Two stereo speakers may work well enough for quietly listening to music, but they aren't going to cut it for game play. A 5.1 channel, six piece set (<http://www.geeks.com/products.asp?cat=SPK#6-PieceSpeaker/SubwooferSet>) providing two front speakers, two rear speakers, a center channel, and a subwoofer are required for a realistic gaming experience.

Some may find that their neighbors don't care to share in the excitement of their latest game. For them, perhaps a set of headphones is a better investment than a set of speakers. The performance of headphones may be just as good as speakers, as some have been designed with multiple speakers to reproduce 5.1 channel stereo sound (<http://www.zalmanusa.com/usa/product/view.asp?idx=110&code=023>). Other headphones provide "force feedback" that actually vibrates to enhance the effect of things like explosions. These Meritline Vibra (<http://www.geeks.com/details.asp?invtid=VIBRA&cat=SPK>) 2 channel headphones provide such a feature, as well as including a microphone. Many multiplayer games support the use of microphones to allow team members to communicate with each other.



## Input Devices

The interface between the player and the computer is obviously an important one. Items such as keyboards, mice, and game controllers are all critical to ensure that a player can't blame poor performance on anything but a lack of skill.

Some may say a keyboard is a keyboard, and that it can't possibly matter, but it does. Having a comfortable keyboard is the top priority, and other features may make things even more enjoyable during game play. A keyboard such as this one (<http://www.geeks.com/details.asp?invtid=SIL-USBPS2-2160-WB&cat=MOU>) may be desirable for two reasons. One, the backlit keys allow for easy viewing in dimly lit rooms. Lowering the lights makes the monitor appear brighter and perhaps have better contrast. Two, the multi-function keys may allow for combination commands to be programmed into one button. For those who want to get really serious with a keyboard for gaming, look into the Zboard (<http://www.zboard.com/us/index.html>), considered to be the "ultimate gaming keyboard."



Most computer games utilize the mouse as the main control for direction and weapon selection/use, so a good mouse is obviously quite important. Being able to have smooth, precise movement is critical to getting around quickly and making sure the shot hits the mark. An old roller ball mouse jammed full of dust probably won't help, and an optical or laser mouse is the way to go. Logitech has mice that provide the precision needed, as well as ergonomically designed bodies that should remain comfortable through hours of intense game play. The MX510 (<http://www.geeks.com/details.asp?invtid=931162-0403-DT&cat=MOU>) is a wired optical mouse and the MX1000 (<http://www.geeks.com/details.asp?invtid=931175-0403-DT&cat=MOU>) is a wireless laser mouse that takes performance and comfort to the extreme.

While talking about precision and smooth movement, we can't neglect the mouse pad. Performance "mousing surfaces" such as the X-Ray Pad (<http://www.xraypad.com/>) and the Maxill G-Pad (<http://www.maxtill.com/eng/index.php>) provide uniform surfaces in various sizes to suit any user's needs.



When considering games, we have to talk about game controllers. Many computer games don't need anything more than a keyboard and mouse, but many games do require specialized controllers to enhance game play. Some controllers have cloned the popular shape of controllers found on popular console gaming systems. This controller (<http://www.geeks.com/details.asp?invtid=PCJOYPAD-BLUN&cat=JOY&cpc=GAM>) bears a striking resemblance to a PlayStation controller, allowing those familiar with the controls on that system to be comfortable on a PC, as well. In addition there are controllers for driving games (<http://www.geeks.com/details.asp?invtid=NASCARPRO-WO&cat=JOY&cpc=GAM>) and flying games (<http://www.geeks.com/details.asp?invtid=TGFOX2-TR&cat=JOY&cpc=GAM>), among others.

## **Final Words**

Having a computer configured to be the ultimate gaming system with all the latest and greatest hardware could easily cost several thousand dollars. Guess what? Within a few months, all of those cutting edge components will be old news, and a whole new batch of products will be available with even greater performance. But, if you are like most consumers, you have a budget and picking components that provide decent performance is possible without mortgaging the house.