

ELITE PROGRAMMER PC UPGRADES



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So you want to code the next big app or make the next gaming phenomenon, but your hardware isn't exactly cutting edge?

That's less of a problem than you may think because upgrading your components is often a simple and painless process so long as you know what needs to be swapped out.

That leads to the obvious question: What hardware specs do programmers really need?

More speed and bigger hard drives for storing code assets are pretty obvious answers, but there's more to this story than you might expect.

Take a Hint From Coding Program Requirements

Even seasoned pros can look to new students just [entering the field](#) for inspiration in understanding what hardware needs to be upgraded.

Why is that exactly?

Students entering a coding program can typically find minimum laptop spec requirements in their course material.

While your specific needs may change depending on what OS and coding language you are using, these spec guidelines offer an

excellent baseline idea of the sort of hardware specs you need to effectively work as a computer programmer.

In general, you'll find that most programming courses recommend these basic specs:

- Intel i5 CPU, with an i7 recommended.
- 8GB RAM, with 16GB recommended.
- 1920 x 1080 resolution display.

Those are a great starting point for seeing what to upgrade, and we'll examine each of those specs in detail below, but don't forget about something that might not be immediately obvious, hardware!

Some components can be an absolute necessity for a coding-work laptop, like a USB hub, a card reader, or HDMI ports for connecting extra devices or transferring data in different ways.

Let's dive in and see what components should be upgraded first.

1. Upgrade Your Monitor Setup

We're going to start with a hardware component that many people don't realize can make or break your coding experience.

Wondering why college programming courses recommend a 1920 x 1080 display?

That higher screen resolution requirement is not necessarily because you need to stream 1080p video. Instead, a higher resolution offers

more viewing area for multiple programs and applications at the same time.

Buying a better monitor for your desktop PC is a snap, but upgrading your display isn't really an option for laptops, obviously.

Replacing the screen and video cables on a portable machine is way more trouble than it's worth unless you've accidentally broken the display somehow.

There's another option here for laptop users, though: Use those extra HDMI and USB-C ports to connect an external monitor (or even two).

A multiple-monitor setup is not at all a bad idea, so you can easily switch back and forth between your code and the running program without having to Alt+Tab all over the place.

2. Upgrade Your Hard Drive/SSD

Before we get into the components like the processor and physical memory, it's worth stating that the speed boosts achieved by switching from a hard disk drive to a solid-state drive (SSD) can't be overstated.

While that's great for the average user who wants quick boot ups and fast data retrieval, it's absolutely crucial for programmers, especially if coding is how you plan on [making your income](#).

Installing an SSD means less downtime while waiting on those endless Windows updates and restarts.

Solid state drives are simple to install, especially with laptops these days, as there's typically only a single screw to remove to pull out the old drive.

While SSDs are the way to go for whatever drive your OS has installed, don't forget you can add a cheap secondary hard disk drive (HDD) for extra storage of files that don't particularly need to be accessed immediately.

Whether you go with the faster SSD or slower but larger HDD, keep in mind you may end up needing a drive large enough to run a dual boot system if you plan on coding in multiple environments.

Virtualization of other operating systems is another option, but that requires a fast CPU and a large amount of RAM to work well.

Finally, don't forget there's a cheaper and easier "upgrade" option here that doesn't involve swapping out components.

Simple cloud storage solutions can alleviate your PC speed problem so long as you have reliable internet speeds in your area and a hardware combo capable of quickly transferring files around.

3. Upgrade Your RAM

Here we arrive at the most obvious (and most helpful) upgrade.

Coding requires a lot of memory because your programs will eat up every last available megabyte while compiling.

If you find you get a lot of stutters, lag, and crashing while debugging or compiling, a quick and easy option is just to slap in some extra RAM.

At this point, 16GB is basically the bottom line for any sort of advanced user applications, but if your motherboard can handle 32GB, I'd recommend upgrading to 32GB.

4. Upgrade Your CPU

Still getting slow speeds, even with more RAM?

The culprit is going to be your processor, as older CPUs have trouble compiling programs or using other tools you may need as a programmer—like video and image editing apps.

Unfortunately, upgrading the CPU isn't particularly an option for the laptop crowd, short of buying an entirely new machine with a better processor altogether.

However, since the average budget laptop [typically only lasts about 3 years](#), that may not be a bad idea.

Whether upgrading your desktop PC's processor or just flat out buying a new laptop, sticking with an 8th gen Intel i7 is a surefire way to get great speed now and future-proof against updates.

5. Upgrade Your Graphics Processing Unit (GPU)

This is really only necessary for programmers working with graphics-intensive apps, like Windows games or video editing tools.

Unfortunately, this is also not typically an option for the laptop crowd, but there is a workaround now.

External GPUs are becoming more prevalent and are incredibly easy to hook up.

Although they reduce your portability, connecting to an external graphics card can quickly and easily give you advanced performance when coding graphics-intensive programs.

While the new RTX series cards are available now from NVIDIA, in most cases, a GTX 1070 or 1080 will be all you need for any programming application.

Don't Throw Out Your Old Components!

After going through all those upgrades, you're probably left wondering what to do with the old hardware.

I mean, who really needs a sad 4GB stick of RAM?

As it turns out, you do!

Keeping older tech on hand is an excellent way to [test your programs](#) on a variety of hardware setups.

Not every user is going to have a high-end machine with cutting edge specs, so you need to know your programs will work on everyday hardware.

Upgrade Your Hardware, Upgrade Your Coding

Now that we've got that last tidbit of info out of the way, let's take a quick recap of the best [hardware to upgrade for programmers](#):

- Upgrade your display, or switch to a multi monitor setup.
- Switch to an SSD, or add a secondary HDD.
- Add additional RAM up to your motherboard's maximum.
- Upgrade to a better CPU, or get a new laptop.
- Install a newer GPU.

With these upgrade-friendly components in mind, you should be well on your way to whipping up the next Tinder or Angry Birds. Good luck with your coding career or personal programming project!



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