

Intro Computers for CNC Newbies

Hi... My name is Alan Speakman, and I'm a member of the BobsCNC Facebook Group. Repeatedly, new members in the group have revealed that they are either completely new to PCs or are "PC Challenged". They may be coming from a Mac or smart phone background, or perhaps they simply never really liked PCs, but in any event, they don't have much personal computer experience. I'm just the opposite – I started before the original IBM PC, and never looked back. I earned a two-year technician's degree, and then started over and doubled-majored in computer and electrical engineering. My work history after college includes CNC system design as well as seven years of Microsoft technical support and three years as a technical writer. So, given that as a backdrop, I thought I'd craft a simple paper/video series addressing basic computer info and skills for the newbie. Hopefully, this will make the entry into the PC-controlled BobsCNC (and any other PC/CNC for that matter) universe a little less arduous. Here goes...

I decided to break this tutorial into three parts:

- i. Basic PC info for understanding and buying a machine for: BobsCNC control, actual design work, and general usage
- ii. A look at example computers and hardware, *and* the technique I use for buying such
- iii. A quick tutorial on file storage: drives, folders, sub-folders, and searching

Here we go...

Part 1: Basic PC info for understanding and buying a PC for BobsCNC control, actual design work, and general usage...

Let's talk about PC guts! [Note: I'm not going to go into the weeds concerning stuff like RAM speeds, graphics cards, hard drive RPMs, etc.] Let's just cover the basics. Over time, you can grow into the more wonk-ish aspects of all this, but right now, let's just cover the basics. I'll use the following spreadsheet entry as a guide for the first video.

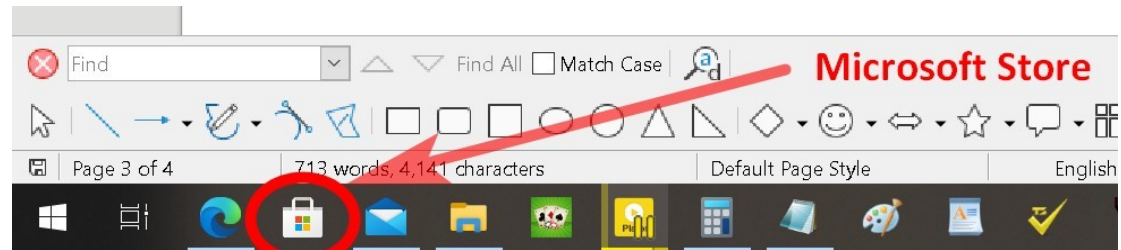
Newbie's Guide to PCs for CNC			
Things to consider:	Component	CNC Control	Design
* One of the first places to start searching for basic CNC hardware info is on the BobsCNC site itself...	Processor	i3 dual, 2GHz and up	i5/i7, quad, 3GHz and up
	RAM	4GB and up	16GB and up
	HD	256GB and up	512 GB and up
	USB Ports (2.0, 3.0)	2.0 and 3.0	3.0
	USB Storage Device(s)	Yes (Note)	Yes (Note)
	DVD	?	Yes
I'm making the prices high – this is for the complete computer noob who wants to start right, and doesn't have the experience to tighten the budget...	Win 10 64 bit (Home, Office, S)	Win 7 and up.... Note on Win 10 "Secure" mode	Yes...
	Renewed	?	?
	Warranty	Yes (Max if renewed)	Yes (Max if "renewed")
* PC, Mac, Raspberry Pi, Chromebook, mini	HDMI	?	Yes
	Wifi	Yes	Yes
* Celeron, AMD vs. Intel	Mouse	Yes	Yes
	Keyboard	Yes	Yes
*Picking a computer, and practically everything else...	Monitor	Yes (apx. \$150)	Yes (\$=?)
	Tablet/stylus	?	Yes
	Final Cost	\$500-\$750	\$1000-\$1500
* High price also <i>includes</i> ... Lighting, heat, extension cord, power strip, improved keyboard/mouse/tablet, enclosure/ vacuum, chair, table, wood, bits, finish...			

Here's the YouTube link that explores the spreadsheet above:

<https://youtu.be/H2giHW5Mp4I>

Notes on the subject and video:

- Here's an excellent chart that shows the specs on the Intel line of microprocessors (Hint... Cache size matters!):
<https://en.tab-tv.com/?p=14566>
- This Vectric site gives a great insight into minimum computer specifications in the CNC environment. (IMHO, I'd also suggest that these specs should be considered for general home usage.):
<https://www.vectric.com/support/system-requirements>
- One of the things I *didn't* stress enough was the importance of backups, especially backing up your work files! (You can always reinstall applications,) There is a 'rule' in the business: you can't have enough backups!!! Backup! Backup! Backup! And then backup some more!!! The cheap cost of USB flash drives makes backing up almost free! Backup! Backup! Backup!
- I failed to mention the possible need for a DVD drive on a CNC control computer... Truth be told, you don't *need* a DVD drive to control a BobsCNC... But they still are handy, and they're cheap to boot. Beyond that, if you're going to go the single-computer route (computer that does both CNC control *and* design), IMHO, a DVD is a must.
- Concerning the Mac vs. PC software like VCarve... I suppose if a person had a Mac with a *lot* of RAM, he could run a PC virtual machine on the Mac, and go from there... Interesting idea...
- I mentioned WiFi relative to Internet connection... A hard-wired cable connection works too! Just be able to get to the Web!
- I also failed to talk about the Windows 10 "S Mode" version, or the "Security Mode" version of Windows. The S version of Windows is Microsoft's way of protecting a user from accidentally loading malicious software. Sooo... Microsoft built into the Windows 10 S version a mechanism that only allows installation of applications from Windows Store. Typically, you can see the Store in the bottom left in the Taskbar...



Frankly, the Security Mode version is not a bad idea – it stops the casual ‘click’ from becoming a serious problem. Still, there is a way to turn off the S mode: [Switching out of S mode in Windows \(microsoft.com\)](https://www.microsoft.com/en-us/windows/security/defender-app/switching-out-of-s-mode). As long as you know what you’re doing, turning off the S Mode is fine.

Part 2: A look at example computers and hardware, and the technique I use for buying such...

Enough techno-babble! Let's see how it looks in the real world with companies like: HP, Philips, Acer, Dell, BobsCNC, SanDisk, PNY, Seagate, Sabrent, Epson... And let's look at my *magic method* for picking great hardware, software, and even CNCs! Here's the YouTube link into this video:

https://youtu.be/x_Sxv0cj9c4

Notes on the subject and video:

- Here's a list of the USB flash drive manufacturers I trust:
 - SanDisk
 - Samsung
 - PNY
 - Micro Center
- Why USB hubs? Because it's easy to run out of USB ports on a computer. Think of USB hubs like power strips – USB hubs provide extra USB ports just as power strips provide extra 120VAC outlets. [I always connect my BobsCNC directly to a USB port on the computer. That way, if there is a problem, the hub is out of the picture.]
- When it comes to printers, I like the printer/copier/scanner types and tank models. Things to think about: display size, connectivity (wired, wireless, Bluetooth, WiFi...) Also read some of the bad customer reviews... What problems are they having? Printer hangs? Clogged print nozzles? Connectivity? Paper jams?

Part 3: A quick tutorial on file storage: drives, folders, and sub folders...

Ok, so now you have all that computer horsepower, and you're ready to start installing software and creating files... Where does everything go? People like to blithely say, *"They're in the computer!"* But what does that mean? Where do the applications go? Do they reside in the cables? Where do your files go? Sheltered safely in the keyboard? The following video should give some insight:

<https://youtu.be/4fBr-qrwObE>

Notes on the subject and video:

- I use the terms "File Manager" and "File Explorer" interchangeably... Sorry, I'm just showing my age. They are the same.
- The icon typically used for a search is the magnifying glass.
- I wish I had more time to go into the use of wildcards when searching for files... Wildcards act as "stand-ins" when you're not quite sure of all the characters in a file name or file contents. For instance, you might remember you named a .jpg file something that started with "al", but it might have been "albert", "alvin", "allen", "alan", or "Al Baby"... Searching for "al*.jpg" from 'This PC' will find them all... But beware! You may want to only search through file names and extensions – searching through file contents will probably be a **long, time-consuming process!** (See video above.)
- You might want to use the 'Quick Access' feature in Windows. This basically let's you tell the operating system, *"Here's a list of the folders I frequently use..."* And here's an explanatory link: <https://www.windowscentral.com/how-use-quick-access-file-explorer-windows-10> (FWIW, I never use this!!)

Wrap up

And that's about it... Hopefully that will give you a starting point into the wonderful world of PCs, especially relative to BobsCNC. Remember, help is easy to find:

- BobsCNC HelpDesk: <https://www.bobscnc.com/pages/contact-us>
- BobsCNC FaceBook group
- You can always email me at: alan_speakman@hotmail.com ... I love talking computers!