



# New Computer Recommendations

rev Feb 2016

These recommendations are based on 14+ years of experience repairing computers at Portable CIO. The configurations we recommend are based on experience of what we believe will most reliably serve our customers. We judge systems based on their reliability and serviceability as observed across thousands of repairs. A low sticker price does not represent the total cost of ownership you'll pay, or tell you how good their customer service may be. Appearance means very little in relation to performance. Manufacturers regularly sell good looking but under-configured computers for a bargain just to move more boxes, so *never* buy solely on price. Use these guidelines and buy the best computer you can afford at the time.

All computers are not created equally and our guidance is to ensure you get the best value and reliability from your new system. If you buy a machine configured properly, it should have a 3-4 year lifespan in a commercial setting, and 4-5 years in a home setting.

- 1. PC Manufacturers:** For desktop and laptop PC's, we recommend Dell and IBM/Lenovo computer systems. For businesses, we prefer the Dell Optiplex and Precision desktops, and their Latitude and Precision laptops. For home, the Dell Inspiron, and XPS lines are best. The best place to purchase a Dell for home and small business use is from [Costco.com](http://Costco.com) (their online store). For commercial use we recommend buying direct from Dell to obtain the proper business configurations. Because Costco is huge they are able to purchase and sell computers that are better configured and cost less than we can buy directly from Dell with our "partner" status. Their prices are very competitive. Also, when buying through Costco, they double the standard Dell one year warranty to two years. Lenovo laptops have been outstanding and come with a variety of options, screen sizes and features not available through Dell. They have many models to choose from, and they can be found at <http://www.lenovo.com/us>. In our experience, their customer service has been first-rate.
- 2. Operating System:** Windows 10 is the newest operating system introduced by Microsoft. It is an evolutionary change from Windows 8. One feature to note in this operating system is the return of "Start Menu", which was strongly missed since the release of Windows 8. Windows 10 is still young and receiving regular bug-fixes and updates from Microsoft, so to ensure that the computer remains secure and functional, updates should be installed regularly. If you are planning to use any older software, printers, scanners or other unique peripherals, you should check whether they will be compatible with Windows 10 beforehand. You can check Microsoft's website here: [www.microsoft.com/compatibility](http://www.microsoft.com/compatibility) or check the peripheral's website.
- 3. What about Apple?:** Apple Macintosh computers are very popular for both home and specific work environments. Whether buying a MacBook Air, a MacBook Pro, or a big-screen iMac, you'll notice Apple's elegant styling and their ample price tags. Remember that if you plan to convert from a PC to a Mac, you'll need to repurchase all of your software, and ensure all your peripherals and software will be compatible with the new platform. If you want the best of both worlds, consider getting a Mac and then running "VMWare Fusion" with Windows 10 in a virtual machine. When you run a "virtual" PC within your Mac, you can still use software that may be proprietary to the PC world, while enjoying the other features the Mac has to offer. Please understand that Macs do get infected with viruses and require AntiVirus software exactly like PC's. The marketing hype that said Mac's don't get viruses is and was a marketing ploy. As Macintosh sales have improved and their numbers increase, they have become more popular with the criminals who write viruses and malware. The AntiVirus product we recommend for Mac users is "Sophos Anti-Virus for Mac Home Edition." It's currently free, but don't let that fool you, as it is a fully operating product.



4. **Laptop VS Desktop VS AIO:** We tend to buy systems similar to what we have been using. Generally speaking, unless you need the portability, we recommend a desktop computer as they are easier to service and you will get more “bang for your buck”. Laptops cost more and perform with less gusto than their desktop counterparts. Some of our customers like the AIO (All-In-One) Desktop machines where the monitor and computer are one unit. Our experience is that these types of machines tend to have cooling problems and run hotter, resulting in earlier hardware failure and have higher service costs. If you are looking at a desktop machine, stick with a mini-tower as it will provide better air circulation for the internal components, and be easier to service if necessary.
5. **iPads, Surface Pro, Android Tablets:** Apple reinvented computing when they introduced the iPad in April, 2010. Since then, every major manufacturer has introduced their own version of tablet computing. The introduction of the iPad, (now the iPad Pro) together with the maturation of web-based services (“Cloud Computing”), has created an environment that allows many people to leave their computers at home and use their tablet instead. Google introduced the Chrome Book, and for someone who has access to a Google account, WiFi and just needs web access with email, this is a fantastic and effective solution. Another excellent tablet computer is the Microsoft Surface 4, which run a full version of the Windows 10 operating system, blurring the line between tablet and laptop. Try out these devices before you buy them, making certain you’re comfortable reading and typing on / touching these smaller, higher-resolution screens.
6. **Processor:** For general home and office use, we recommend at least the Intel i5 (or AMD equivalent) or more preferably the Intel i7. Whichever processor you purchase, we recommend purchasing the fastest speed available that you can afford, measured in gigahertz (Ghz) (i.e., 3.4ghz is faster than 2.5ghz) and number of cores (more cores = better/faster). If you plan to do video or CAD work, do not skimp on the processor or RAM, and invest in a robust high-memory video card (see below.) Video processing takes an enormous amount of computing power, and the more you give it the better your experience will be. The speed of your processor is a factor in how long your computer will last. A faster computer will last longer as software gets increasingly complex over time, which requires more processor resources. A slower computer will run out of resources sooner.
7. **Memory:** RAM is inexpensive and extremely important as it directly affects how well your computer will perform. For laptops we recommend a minimum of 8gb, and 16gb for desktops. If you have specialized needs such as editing videos or large pictures, get 24-32gb. RAM is the cheapest and most effective upgrade you can add and it’s always better when the manufacturer installs memory they have certified to work with your system. At PCIO, we use between 16gb and 32gb in all of our systems.
8. **DVD / Blu-Ray:** If you’re buying a desktop computer it may come with an optical drive. We still recommend getting one if it’s optional, although it won’t be long until they’re obsolete due to most all software being downloaded and installed from the internet. Many laptops don’t come with these drives. Unless you have a specific use for one, this is something you can probably do without.
9. **Keyboard and Mouse:** The selection of keyboards and mice is completely personal, and you should spend some time exploring what feels the best. Visit an electronics or office supply store, where you can touch the various models they have on display. The ones included with new computers are usually nothing special, although that may be fine for you. If you want quality, buy a nice Logitech or Microsoft combo. Wireless is cool and convenient, but wired mice and keyboards are more reliable.
10. **Hard Drive:** Faster is better, and bigger is necessary. Desktop hardisks commonly come in two speeds: 5400 RPM and 7200 RPM. Laptops commonly have 5400 RPM drives, with performance laptops using 7200 RPM drives or new SSD’s. A Solid State Drive (SSD) is comprised of non-volatile memory that behaves like a hard



disk, and comes in different sizes. They're slightly more expensive but offer the best performance. If the size and price of an SSD fit your budget, buy one instead of a traditional drive. They're twice as fast, use less electricity (better battery life), are shock-proof (in laptops) and generate less heat. Hardisks lose efficiency after they are 50% full. If you have 250gb of data, get a 1 terabyte or 2 terabyte hard disk, not a 500gb hard disk. *The lower percentage of your drive used, the better it will perform.* If the drive is lagging, the computer will also lag. For best results try to stay in the 25-40% range of hard disk utilization.

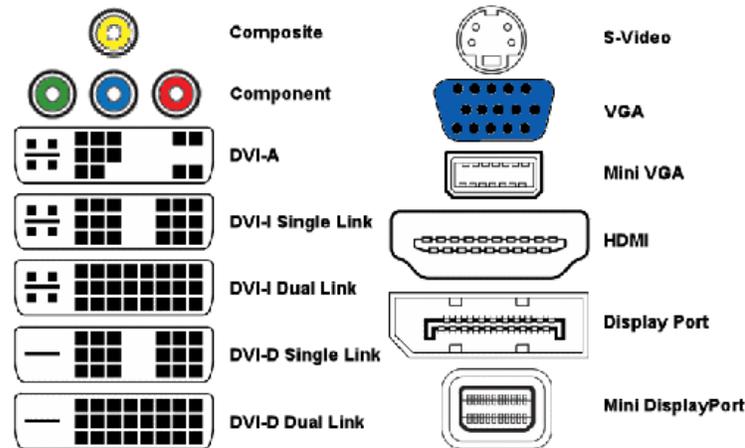
11. **Hard Drive RAID:** A RAID-1 arrangement is when you have two hard drives that mirror each other, and they are written to or read from simultaneously. The theory is that if one goes bad, you run on the other until the first one is replaced. This is not something most people need. If you really cannot afford to be down, having a RAID-1 setup together with image-based backups of your computer and daily internet-based backups of your changing data is the way to do it – and it's still not a guarantee. The additional cost for RAID is usually a few hundred dollars, which is minor when compared to the cost of unplanned downtime for a business. For most home environments we would simply recommend an offsite backup for your data, such as CrashPlan in lieu of a RAID setup.
12. **Wireless Card – 5GHz:** Wireless comes in two speeds: Legacy 2.4GHz and modern 5GHz. Only buy new laptops, tablets and desktops that have “Dual Band” 5GHz network cards, which means they can communicate on *either* the 2.4GHz or 5GHz frequencies. This is important because the 2.4GHz frequencies are commonly used by so many devices they become congested in many urban environments and most commercial office buildings. Pay attention to this specification if you are buying a laptop or tablet and will need to rely on that wireless in various commercial environments. iPhones (5 on) and iPads come with dual-band network cards, but it's hit or miss with everything else. This is a hard thing to change once you buy a unit, so look carefully before buying.
13. **Monitor:** Choose your monitor carefully! If one is bundled with the computer you are buying, make sure it's good enough and big enough to be suitable. The monitor, keyboard and mouse are the three primary ways you will interact with your computer, so it's important to get a monitor that compliments the way you will use it. Factors such as your eyesight and the space where you plan to put it are important considerations. Standard HD displays have a resolution of 1980x1024 pixels. (The bigger the numbers, the better the picture.) Get as large of a monitor (in inches measured diagonally, corner to corner) as possible. Don't strain your vision on an old, small display. Get a 24-27” display, or two of them, and you will enjoy using your computer again. Everyone loves Apple displays because they have high and extremely crisp resolution. You can have that same crisp resolution if you buy a high-end PC monitor, such as Dell's UltraSharp or their 4K/5K/HD series. They have displays with resolutions of 2560x1440 or above and all are available from Dell's website. They're a little more money, but they have beautiful pictures you'll love to use. ([www.dell.com](http://www.dell.com))
14. **Video Card:** The built-in video card that comes with your computer should be ample unless you want to play intense 3D games with your computer. If there is an option for an add-in card, such as a 2-4gb video card with different ports, it will give you better performance than the built-in video setup and the ability to connect more than one display to your computer. Whichever you choose, make sure the computer has the type of display ports you need for the monitor or TV you plan to use: VGA, DVI, HDMI or DP (Display Port.) Consider whether you want dual, triple or quad outputs for using multiple displays, as it is a productivity enhancement to use multiple displays. HDMI and DVI connections produce crisper images than VGA, which is becoming obsolete. DP stands for “Display Port” technology, which lets you daisy-chain monitors together. The DP connector looks a lot like an HDMI, but has one of the sides squared-off, and only one side is angled.



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If you're using an existing monitor, make sure to know what kind of port it uses before ordering your computer. See the graphic below for a visual description of the types of video connectors your computer may use. Many computers now come with HDMI connectors, which can be used to connect your PC directly to the HDMI input on your TV or display. Again, ensure that whatever monitor you're connecting to has the right connection to work with your new computer. If you get stuck on the topic of video cards and monitors, call or email our office for further guidance.



15. **Warranty.** Every (?) computer comes with a limited one-year warranty, or two years if you buy through Costco. Extending this warranty, including the option to have next-day onsite help from a Dell or Lenovo representative is up to you and your budget. We never recommend purchasing a local retail store warranty for your computer equipment. However, many clients have received good value from extended Dell and Lenovo manufacturer's warranties, so it is up to you and what best fits your needs.

## Notes

- When you have your configuration, email it to "helpdesk@theportablecio.com" for technical review. We'll review it before you commit to the purchase.
- Office software: If you use Microsoft Office you must provide your Microsoft account or product key, or you must purchase a new copy. The current version is Office 2016.
- Antivirus: We recommend and carry AVG Antivirus (\$60/2-yr license). We do not recommend purchasing or using the Dell or Lenovo-bundled copies of Norton, McAfee, Trend Micro or BitDefender Antivirus, or products including the words "Internet Security" when you purchase your computer from a manufacturer.
- Anti-Malware: We recommend Malwarebytes Anti-Malware package (\$25/1-yr, 3-computer license) to be used in conjunction with the AVG Antivirus. This product compliments the AVG software and adds an important layer of protection against this category of irritant which has become so prevalent. Licenses last one year and are purchased directly from the manufacturer using your credit card.
- Anti-Ransomware: We recommend Malwarebytes Anti-Ransomware, which as of Feb 2016 is in Beta trials. This software has been proven to protect against the prevalent versions of Cryptolocker and other encryption-based ransom schemes. This software is currently finishing trials and pricing is tbd, but likely to be similar to the antim malware product.



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- Backups: We strongly recommend backups of your system over the internet with a service like CrashPlan ([www.crashplan.com](http://www.crashplan.com)). If you have several machines to protect, consider a “Family Plan”, which gives you unlimited backups for up to 10 computers for a flat fee each month. For Businesses with several machines, consider their “Business Plan”, which gives unlimited backups for a flat fee per machine per month. This should be considered mandatory software on every computer in your home and business.
- Have your new system shipped directly to the PCIO office for the preparation and transition of data from your old system. Be sure to let us know it’s coming so we can make room on our busy bench! Once the new system is configured, a Portable CIO consultant will deliver and install your computer in your home or office, and ensure you’re fully operational with your new system. Our shipping address:

**Portable CIO, 172 Via Serena, Alamo, CA 94507**

*Remember to email your configuration questions to*

[helpdesk@theportablecio.com](mailto:helpdesk@theportablecio.com)