



Buying a new Computy Device

**Mike Quinn (mike@mquinn.org)
April 13, 2023**

**Summerset Computer Club
computerclub.summerset2.org**

What kind of Device?



- Desktop
 - Gaming, Raw Power, Build it yourself
 - Needs added screen, keyboard, mouse
- Laptop
 - Portability, but experience of a desktop
- Tablet
 - Portability, Light weight, easier experience than most laptops
 - Similar to Smartphone, but bigger
- Combo Laptop/Tablet (Hybrid)
 - If you want to use a keyboard, but like the convenience of a tablet
- Smartphone
 - Everyone has one – it's a Tablet that's a phone and really small!

Laptop power these days is pretty good – you can get gaming laptops that will play most of today's demanding games.

Combo Laptop/Tablets are rare. Microsoft Surface is probably the best example of one. The issue with these is that they usually aren't a great tablet or a great laptop.



And now, a Quick Tutorial

- A byte is 1 character of information
- K(ilo)Byte is 1024 bytes of information
- M(ega)Byte is 1024 Kilobytes (roughly 1 million)
- G(iga)Byte is 1024 MegaBytes (roughly 1 billion)
- T(era)Byte is 1024 GigaBytes (roughly 1 trillion)

Ram is normally in Gigabytes.

Disks are in Gigabytes or Terabytes.

Your average good-quality photo is 3-6 Megabytes,

An HD Video is anywhere from 500 Megabytes to 20 Gigabytes

A 4K Video is anywhere from 5 Gigabytes to 40 Gigabytes

A Document can be anywhere from 1 byte to maybe 10 MegaBytes

Laptops/Desktops

- Operating system
 - Windows, ChromeOS, MacOS, Linux
- CPU power
 - Influences battery life on Laptops
- Amount of RAM (8 GB is basic minimum, more if you do anything demanding)
- Amount of hard disk
 - 500 GB minimum, 1 TB (1000GB) if you have a lot of documents/pictures.
- SSD or spinning disk
 - SSD much better for Laptops (lower power, faster)
 - Use SSD for your OS drive even on desktops, as they're FAST
 - Get a spinning disk to hold other miscellaneous stuff, if needed

OS – don't do Linux unless you're prepared to handle issues yourself. You'll see lots of articles about "linux for grandma and grandpa". Don't do it, unless you're at least a bit technically savvy. If something goes wrong, help is hard to get.

Windows is the old standby.

MacOS is supposedly easier (YMMV). The nice thing about MacOS is the ecosystem is fixed. Windows hardware is all over the map, which makes problem solving more difficult.

ChromeOS requires the web to work, but it's significantly cheaper. I don't normally recommend it, however.

CPU power – GHz doesn't tell the full story – depends on the type of chip (Intel X64, Xeon, Apple M1, M2, Smartphone Snapdragon, etc). Normally look at reviews for the device or chip you're looking for.

SSD = Solid State Drive = no moving parts, thus much lower power than a spinning hard disk. Also, much faster, because you don't have to wait for the disk to spin to the correct spot to get the data you want.

32GB of ram will be good enough for almost anything you want to do, and 64 GB will definitely do it, unless you're a researching doing lots of DNA number crunching ☺



Laptops

- Operating system
 - Windows, ChromeOS, MacOS
- Weight and size
- Type of display
- Ports (# of USB, type of USB, HDMI, Thunderbolt, etc.)
- CD or not (most don't come with CD these days)
- Dock
 - Can also add keyboard, mouse, and monitor via USB, HDMI, Display Port, or Thunderbolt
 - Gives both worlds – desktop and laptop experiences

You can always add a CD via USB for the couple of times a year you might actually need a CD. This could also include a CD writer.

Ports – you probably want standard USB-A or the new USB-C for USB, preferably USB 3 ports. Thunderbolt is also a good choice if you have thunderbolt peripherals (Apple).

14-15" is typically a good size for laptops. 17" is a pretty big laptop.



Now a Second Tutorial

- HD is typically 720p = 1280x720 pixels
 - FullHD is 1080p = 1920x1080 pixels
 - QHD (Quad Hi Def) = 2560x1440
 - Ultrawide QHD = 3440x1440
 - UHD = 4K = 3840x2160
 - 8K = 7680x4320
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- HDR – High Dynamic Range = better contrast, brighter whites, darker blacks
 - HDR10 – the standard HDR that’s used everywhere today
 - Dolby Vision = Dolby Labs version of HDR (today, no monitors support Dolby Vision, only TVs), which typically sits on top of HDR10. This requires payments to Dolby Labs by the monitor company to use
 - HDR10+ = HDR10’s answer to Dolby Vision that’s open. No fees required. Also, no monitors use it, and not many TVs use it either

Only really want HDR on a monitor if you’re gaming – if you’re not, it really doesn’t do a lot for you except make the monitor more expensive

Monitor/Screens

- Type of screen/monitor
 - IPS, OLED, TN, VA
 - Viewing angle
 - Color fidelity
 - Contrast
- Size of Screen
- Extras
 - HDR
 - Touch screen
 - Curved or straight

Panel Type	TN	VA	IPS
Response Time	<1ms	4-5ms	1-2ms
Color	Poor	Good	Best
Contrast	Good 1000:1	Best 3000:1	Good 1000:1
Viewing Angle	170/160	178/178	178/178

OLED (Organic LED) is the best technology at the moment because the pixels light themselves, which allows for the deepest blacks. Other techs use backlighting, which tends to wash out the picture.

Apple's Retina displays are a type of OLED technology with "improvements" from Apple.

Ultimately, you probably want to look at the display, and evaluate it in the lighting it will be used in.

Used for outdoor reading will be different than used in a darker office.

If you're a gamer, you might want HDR support on your screen (High Dynamic Range).

IPS = "In-Plane Switching", gets better color contrast than most VA and TN panels, wider viewing angles and faster response time

TN = "Twisted Nematic" – oldest type of monitor – preferred by competitive games because of rapid refresh rates, but worse color accuracy

VA = "Vertical Alignment" = better color, contrast and viewing angles than TN, can rival IPS

Available ports

- Upgradeability
 - Add PCIe Cards if needed
 - Add disk drives
- Enough USB/Thunderbolt ports
- Right types of USB ports
- Need eSata port?
- Audio inputs and outputs
- HDMI or Display port or DVI



DVI – older style monitor interface – newer monitors don't always have this

HDMI – same as the TV interface, can handle 4K up to about 120 HZ depending on the HDMI version number (2.1 is latest)

Display Port – best for displays as it can handle the most data. Either a Display Port connector or a USB-C connector can typically be used (but you need to make sure the USB-C connector can be used for video, not all can)

Audio choices are the standard stereo-type plugs, or optical or coaxial audio, or if your video card supports it – audio over HDMI

eSata is a disk port that is typically higher speed than using a USB Drive. However, with USB 3 or thunderbolt, that is not necessarily true.

Mouse, Keyboard, Trackpad

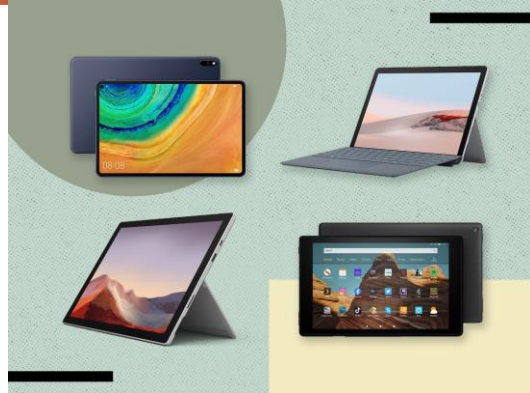
- Feel of mouse/trackpad
- Double-clicking – separate button, or double-tap trackpad
- Feel of keys on keyboard
- Layout of keys/Ergonomics
- Fancy lighting?
- Response of keys.
- Wired or Wireless/Bluetooth



Wireless keyboards and mice often use a small “dongle” in a USB port to do their wireless thing.... The downside is they need batteries that either need replacing or recharging. Bluetooth mice use Bluetooth, but you need to be careful as they’re not as “smooth” as the dongle-type or wired type keyboard. And they still need batteries. The upside of Bluetooth is that typically your laptop/desktop supports it directly and you don’t need to use up a USB port.

Tablets

- OS – Windows, Android, iOS
- Screen Technology
- Battery Life
- Built-in Ram and Storage
- SD cards for expandability
- Wifi, or Wifi + 4G/5G (Which carrier)



How much RAM (Random Access Memory) and Storage kind of depends on the operating system and how much it uses. More RAM is almost always better.

How much storage you need depends on what you're going to be storing. Lots of high-quality pictures will need more storage (64 GB at least). Videos will need LOTS more storage (256 GB at least).

Smartphones

- OS/Technology – Android, iOS, Tesla
- Used/New
- Locked/Unlocked
- Get it with a carrier “deal”
- Camera
 - Latest iPhone, Galaxy, Pixel, OnePlus
- Screen Tech
- Fancy features (folding, big, small)
- eSims/Dual Sims
- Built-in Ram and Storage
- SD Card support
- Battery swapping



Locked phones and tablets can only be used on the carrier they’re locked to. When buying, check what it takes to unlock the phone (an unlocked phone is worth more if you’re selling it).

This typically occurs when you buy a phone or tablet from a carrier with a “deal”.

There are all kinds of deals – free phone with a new line, or transfer of a line from another carrier, special 0% financing for some time with the carrier added to your phone bill, etc.

If buying used, make sure you know if it’s locked or unlocked – if it’s locked, you need to use it on the carrier it’s locked to.



Costs

- Desktop
 - \$300 to \$5000
- Laptop
 - \$300 to \$2500
- Combo
 - \$700 to \$1800
- Tablet
 - \$50 to \$1500
- Smartphone
 - \$170 to \$2000

You can probably find even more expensive items in each category



Thanks for attending

If you have any questions, or would like to see some specific apps or app types demonstrated, please email

mike@mquinn.org

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