



Differences between USB versions and connectors.

The coming USB 3.2 standard that is only specific to Type-C connectors will add to the present confusion about USB connectors.

..... Remember that **USB 1.0/2.0/3.0/3.1 are different standards** while **Type-A/B/C are different shapes of the connectors.**

STANDARDS:

- **1. USB 2.0** = black color for Type-A = 4 pins = data transfer speed of 480Mbps = 2.5W of power.
- **2. USB 3.0** or USB 3.1 Gen1 = blue color for Type-A = 9 pins = 5Gbps = 4.5W
- **3. USB 3.1 Gen2** = light blue or red color for Type-A = 10Gbps = 100Wcharging/15W device
- **4. USB 3.2** on Type-C only = will double the data transfer speed of USB 3.1 Gen1 and Gen2
- **5. Thunderbolt 3** on **Type-C** only = 40Gbps = 100W charging/15W device

N.B.: 3, 4 and 5 can power most laptops, but not most desktops.

N.B.: **USB 3.0 is now called USB 3.1 Gen 1** (Speed up to 5Gbps) - **USB 3.1 is now called USB 3.1 Gen 2** (Speed up to 10Gbps)

SHAPES:

- **1. Type-A** = connect to host computers/desktops, gaming consoles, etc = 4 or 9 pins = only data transfer and power.
- **2. Type-B** = connect to client/peripheral smartphones, printer, digital camera, etc = 4, 5, 9 or 10 pins = data transfer and/or power(eg power only for a charging cable = no data transfer). Difference in shape of Type-A and Type-B is to prevent short-circuit if host connected to another host.
- **3. Type-C** = connect to both host and client/peripheral devices, esp thin ones, is reversible and power delivery is bi-directional = 24 pins = data, power and video/audio for the display = can potentially replace all other cables, eg headphone jack, VGA/HDMI/DisplayPort, Power/charging cable, etc.
- **1. Type-A connector** can only use **USB 2.0** or **USB 3.0** or **USB 3.1 Gen2** standard.

- **2. Type-C connector** can use **USB 2.0** or **USB 3.0** or **USB 3.1** Gen2 or **USB 3.2** or **Thunderbolt 3** standard.

NOTES:

- **1.** USB 3.1 Gen 2 should have been called USB 4.0 = less confusing.
- **2.** If a Type-C cable uses the USB 3.1 Gen2 standard, it should be called USB-C/3.1 = the default configuration = optimum performance .If a Type-C cable uses the Thunderbolt 3 standard = USB-C/T3. If uses the USB 3.0 standard = USB-C/3.0.
- **3.** The Type-C connector is tiny and has 24 pins.! = quite flimsy = should be handled with care.

Source: <https://www.ghacks.net/2017/07/27/usb-3-2-promises-twice-the-performance-of-usb-3-1/#comment-4218659>

