

USB-C Cable Spec Decoder

Why your \$5 cable doesn't drive your 4K monitor — and how to read the spec sheet

Power: USB Power Delivery (PD)

USB 2.0 cables: up to 60W (3A). Real PD-rated cables: 100W (5A) or 240W on PD 3.1. If a cable doesn't list a wattage, assume 60W. To charge a 96W MacBook Pro at full speed, you need a 100W+ rated cable.

Data: USB 2.0 vs 3.2 vs 4 vs Thunderbolt

USB 2.0: 480 Mbps (most charge-only cables). USB 3.2 Gen 1: 5 Gbps. USB 3.2 Gen 2: 10 Gbps. USB 3.2 Gen 2x2: 20 Gbps. USB4 / Thunderbolt 3 / Thunderbolt 4: 40 Gbps. Thunderbolt 5: 80 Gbps.

Video: alt-mode matters

DisplayPort Alt Mode is what carries the actual video signal over USB-C. Charge-only cables don't have it. Look for 'DP Alt Mode' or 'Thunderbolt' in the spec — if neither appears, the cable cannot drive an external monitor.

The single-cable monitor spec

To run a USB-C monitor on one cable (video + power + USB hub upstream): you need 90W+ PD, USB 3.2 Gen 2 or higher data, AND DP Alt Mode. Thunderbolt cables include all three by definition.

Cable length matters

Passive Thunderbolt 4 cables max out at 0.8 m (2.6 ft) for full 40 Gbps. Active cables can go up to 2 m. For longer runs (3 m+), use an optical Thunderbolt cable or step down to USB-C 10 Gbps.

How to verify what you have

On macOS: Apple menu → About This Mac → More Info → System Report → Thunderbolt or USB. On Windows: USBView (Microsoft tool). The OS reports the actual negotiated speed — which is the truth, regardless of what the cable's box claimed.