

# USB-C connector featured on Apple's MacBook has fascinating promise

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Get ready to replace your computer cables and buy some new adapters - the ports and plugs you use with your computers, tablets and smartphones are about to start changing.

A new version of the popular USB connection technology called Type-C is starting to show up in gadgets, most notably Apple's new MacBook

laptop. The technology has important advantages over older types of connectors and has the potential to be the sole connector consumers will need in their devices, doing everything from powering them to linking them to other gadgets.

"The importance of this port and standard can't really be overestimated," said Tom Mainelli, an analyst at IDC.

The new Type-C USB connector is markedly smaller than the standard Type-A that has been used in computers since the late 1990s. Although it's slightly bigger than the micro-USB connectors that are now common in smartphones and tablets, it has one big advantage over them and all other USB [ports](#): It's reversible, meaning there's no one correct way to plug in a Type-C connector. Like Apple's Lightning connector, which it uses in newer iPhones and iPads, a Type-C connector can be flipped over and still be able to be plugged in.

But the new technology has other advantages. The connector can support the newest version of USB's data transfer standard, which can transmit data at speeds of up to 10 gigabits per second. That's fast enough to transfer a high-definition movie in less than four seconds.

Type-C connectors can also provide power - up to 100 watts of it. That's enough juice to run power-sipping devices like smartphones and tablets, but also laptops and even some desktop computers. And the ports will be able to send power both ways, so potentially you could charge your smartphone in a pinch by plugging it into your friend's phone.

One other cool thing about Type C is that it can support other types of communications and connection technologies both natively and via adapters. So, potentially you'll be able to use a Type-C port to connect your computer to a monitor, to a wired Internet connection or to older devices and drives that use ports like FireWire or Thunderbolt. And it's

backward compatible, so you can - with the help of adapters - use it to connect to your older USB-based gadgets, although you won't get the same superfast speeds as you'd get with newer ones.

"It's the single source for delivering audio, video, data and power simultaneously all over one connection," said Jeff Ravencraft, president of the USB Implementers Forum, which helps develop and promote the technology.

The new connector is meant to address some of the shortcomings of older USB and other connectors. Its smaller size will allow device makers to create thinner laptops. Apple's new MacBook is the thinnest and lightest Mac yet, a fact that company executives attributed in part to the slender new Type-C port.

The fact that the cable is reversible should eliminate a lot of consumer frustration. It can often be difficult to tell which way to plug in a USB cable. I don't know about you, but I've broken at least one port trying to shove a cable in the wrong way.

"Fifty percent of the time, you put it in upside down," IDC's Mainelli said. "Most of us do that at least a couple times a day."

Of course, the move to Type-C ports will have some downsides. Right now, there are only a handful of devices that have Type-C ports. Because the new MacBook doesn't have anything but a Type-C port, users are going to have to buy adapters to plug in their older peripherals. And those adapters won't necessarily be cheap; Apple is charging \$80 for one that will allow users to connect an HDMI cable and a standard USB plug to a Type-C port.

In order to get the full benefits of the Type-C technology - the superfast speeds, the greater power transmission - you'll need to have compatible

ports on both sides of the connection and all new cables.

And despite the advantages of the new technology, Thunderbolt, older USB ports, DVI connectors and even old-fashioned VGA cables won't simply disappear as Type-C ports become available. That's because there are plenty of devices still in use that depend on older connections. While Apple appears ready to throw them into history's dust bin, other computer manufacturers will likely support them for years to come. For example, Google's new Chromebook Pixel laptop, announced in the wake of Apple's MacBook, will have both standard USB connectors and Type-C ones.

But Apple's move to embrace Type-C and ditch the other connectors is likely to move the broader electronics industry forward. The company played a similar role in the past when it stopped shipping computers with floppy drives and embraced the original version of USB.

"They lead and others will follow," Mainelli said.

And manufacturers have an incentive to do so. Not only are the new ports faster and thinner than older USB connections, but they offer the promise that manufacturers won't have to include so many different ports in the future, allowing them to simplify their designs. That could be a big benefit for consumers too, potentially allowing them to have just one type of cable to keep track of, rather than a handful of different ones.

"How the industry embraces this stuff is in baby steps," Mainelli said.

"But eventually, more and more will move to it."

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-It's small. The new port is half the width and one-third the height of a standard USB connector and only slightly larger than Apple's Lightning or a micro-USB.

-It's reversible. It doesn't matter which side is up with a Type-C plug. It's fast. Type-C ports can transfer data up to 10 gigabits per second.

-It's powerful. The Type-C provides up to 100 watts of power, enough to power a laptop.

-It's flexible. Via adapters, users will be able to connect older devices to Type-C ports, even devices that use non-USB technologies, like DisplayPort, VGA and Ethernet.

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