UNDERSTANDING USB-C

THE EMERGING INDUSTRY-STANDARD CONNECTOR FOR TRANSMITTING AUDIO/VIDEO, DATA AND POWER
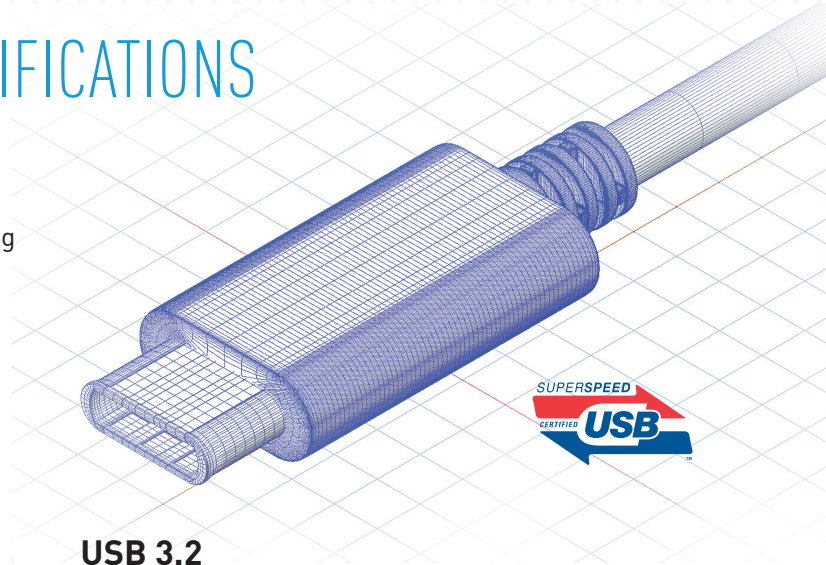

C2G®

A brand of **legrand**®

USB 3.1 AND USB 3.2 SPECIFICATIONS

USB 3.1 is the latest USB specification. It makes a number of improvements over the previous versions upping the data transfer rates to 10Gbp/s while keeping backwards compatibility with USB 2.0 devices.

USB 3.2 will be the next step up from USB 3.1 with transfer rates getting bumped up to 20Gbp/s and you won't have to upgrade your USB-C cables if your devices use the USB 3.2 specification.
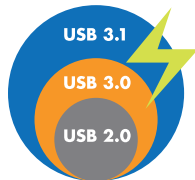
SUPERSPEED
CERTIFIED USB

USB 3.1

New USB Type-C Connector
– Smaller size
– Symmetrical design
– Reversible plugging
– Increased durability

Increased Data Transfer Rates
– Data transfer rates up to 10Gb/s
– 2X the rate of USB 3.0
– 20X the rate of USB 2.0

USB 3.1
USB 3.0
USB 2.0

Enhanced Power Delivery
– 20 volts, 5 amps, and 100 watts
  for power and charging
– 20x USB 3.0 power
– 40X USB 2.0 power

Audio/Video Support
– DisplayPort video output easily
  adapted to HDMI, VGA or DVI
– Four channel audio
  (speaker and microphone)
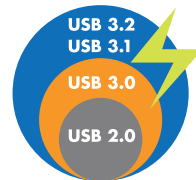
USB 3.2

New USB Type-C Connector
– Smaller size
– Symmetrical design
– Reversible plugging
– Increased durability

Increased Data Transfer Rates
– Data transfer rates up to 20Gb/s
– 4X the rate of USB 3.0
– 40X the rate of USB 2.0

USB 3.2
USB 3.1
USB 3.0
USB 2.0

Enhanced Power Delivery
– 20 volts, 5 amps, and 100 watts
  for power and charging
– 20x USB 3.0 power
– 40X USB 2.0 power

Audio/Video Support
– DisplayPort video output easily
  adapted to HDMI, VGA or DVI
– Four channel audio
  (speaker and microphone)

THUNDERBOLT™ 3 SPECIFICATION

Developed in 2015, Thunderbolt 3 switched to USB Type-C ports and connectors and made the specification cross-compatible with USB 3.1. However, you must have a Thunderbolt 3 specific cable and the port on your device must have a Thunderbolt 3 chip in order to take advantage of its lightning fast data transfer speeds of up to 40Gbps—4x the speed of USB 3.1.

THUNDERBOLT

Look for a tiny Thunderbolt logo on the cable and near the connector of a laptop or peripheral. Uncertified products are not allowed to use the logo.

Same USB Type-C Connector
– Smaller size
– Symmetrical design
– Reversible plugging
– Increased durability

Increased Data Transfer Rates
– Data transfer rates up to 40Gb/s
– 8X the rate of USB 3.0
– 80X the rate of USB 2.0
– 4X video bandwidth than HDMI

One port delivers it all
– Data transfer
– Dual 4K video support
– High bit depth audio
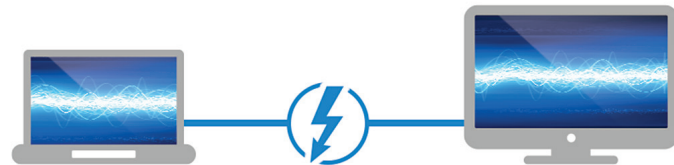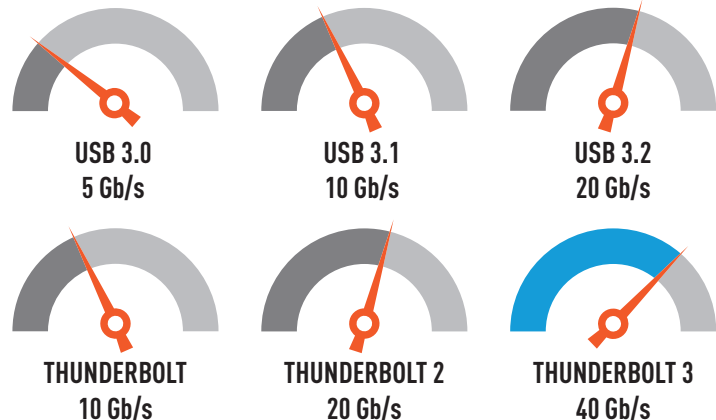– Power delivery up to 100W

Transferring faster is always better
– High resolution photos for editing or storage
– 3D models for video game authoring
– HD video for editing

Capable of backing up a year's worth of continuous MP3s in five minutes!

DELIVERS AUDIO, VIDEO, DATA, AND POWER!

DATA TRANSFER RATES

USB 3.0
5 Gb/s

USB 3.1
10 Gb/s

USB 3.2
20 Gb/s

THUNDERBOLT
10 Gb/s

THUNDERBOLT 2
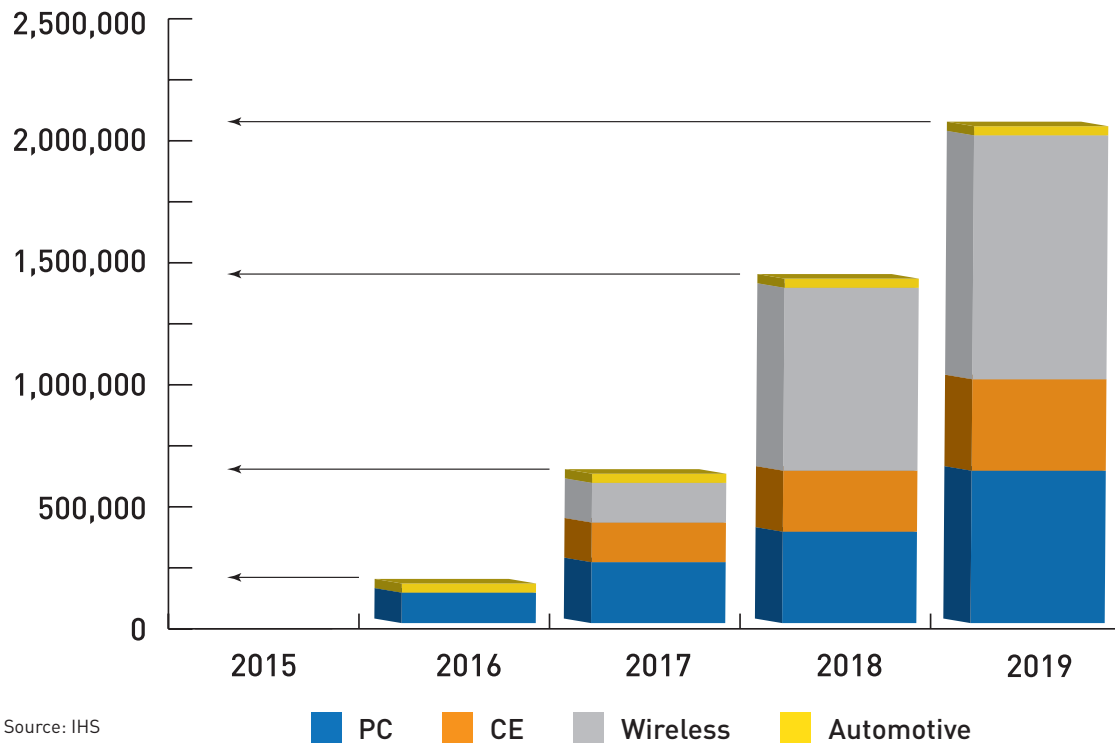20 Gb/s

THUNDERBOLT 3
40 Gb/s

USB 3.1 AND USB-C MARKET FORECAST
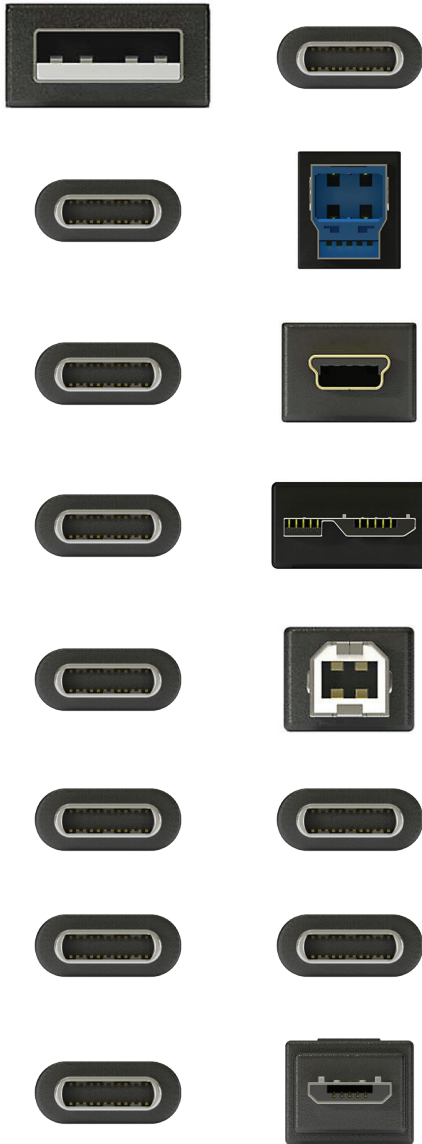
Over 2 billion USB Type-C based units expected to ship in 2019
– 40% of new USB TAM
– 61% CAGR thru 2019

USB Type-C Device Shipment Forecast by Product Segment 2015-2019 (Thousands of Units)

Source: IHS

Legend: PC, CE, Wireless, Automotive

© 2015 IHS

Almost **half of the smartphones** and **93% of laptops** will include USB Type-C connectivity by 2020, according to a recent study from ABI Research

USB-C PRODUCT OFFERING: CABLES

A TO C

Connect a new USB-C enabled device, like a tablet or smartphone, to the USB-A port of a laptop or desktop

C TO 3.0 B

Connect an existing USB 3.0 device, like a storage array, to the USB-C port of a laptop or tablet

C TO MINI-B

Connect an existing device, like a camera, or video recorder, to the USB-C port of a laptop or tablet

C TO 3.0 MICRO-B

Connect an existing device, like a tablet or smartphone, to the USB-C port of a laptop or tablet

C TO B

Connect an existing device, like a printer, scanner, or external hard drive, to the USB-C port of a laptop or tablet

C TO C

Connect two USB-C enabled devices, like a laptop, tablet, or smartphone

THUNDERBOLT 3 / C TO C

Connect two Thunderbolt 3 enabled devices, like a laptop, to a hard drive, docking station, monitor, power source or adapter

C TO MICRO-B

Connect an existing device, like a tablet, camera, or smartphone, to the USB-C port of a laptop or tablet

USB-C PRODUCT OFFERING: ADAPTERS & DEVICES

USB-C TO DATA ADAPTERS

Connect the USB-C port of a laptop, desktop, or tablet to an existing port or device:
– RJ45/Network: Connect to a local area network or the Internet
– SATA/Hard Drive: Connect an external hard drive, or recover data from a hard drive
– DB9/Serial: Connect a serial device, like a controller or data logger
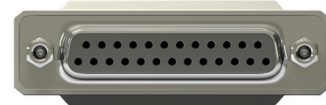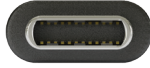– DB25/Parallel: Connect a parallel device, like a printer

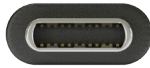| RJ45 | Serial ATA (SATA) | DB9 Serial | DB25 Parallel |

USB-C TO A HUB

Connect multiple USB-A devices to a single USB-C port on a laptop, tablet, or desktop

USB-C TO AUDIO/VIDEO ADAPTERS

Connect the USB-C port of a desktop, laptop, tablet, or smartphone to the audio/video input of an HDTV, monitor, or projector to achieve monitor mirroring or an extended desktop

| DisplayPort | HDMI | DVI | VGA |

USB-C ATTACH OPPORTUNITIES

USB-C products are most commonly attached to computing devices like:

DESKTOP COMPUTERS

How it's used:
– Charging
– Connected devices (tablet or cell phone)
– Connecting devices (printers, keyboards, mice, etc.)
– Audio/video connections

LAPTOP COMPUTERS

How it's used:
– Charging
– Laptop or connected devices (tablet or cell phone)
– Connecting devices (printers, keyboards, mice, etc.)
– Audio/video connection

TABLETS

How it's used:
– Charging
– Tablet or connected devices (cell phone)
– Connecting devices (printers, keyboards, mice, etc.)
– Audio/video connection

SMARTPHONES

How it's used:
– Charging
– Syncing data
– Audio/video connection

USB-C TO AUDIO/VIDEO ADAPTERS

MONITOR MIRRORING

EXTENDED DESKTOP

USB-C RELATED PRODUCTS

CABLES FOR ADAPTERS

Audio/Video Cables
– HDMI
– DisplayPort
– VGA
– DVI-D

Ethernet Patch Cables
– Cat5e
– Cat6
– Cat6a

CABLES FOR THE HUB

USB 2.0
– A to B
– A to Mini-B
– A to Micro-B

USB 3.0
– A to A
– A to B
– A to Micro-B

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