

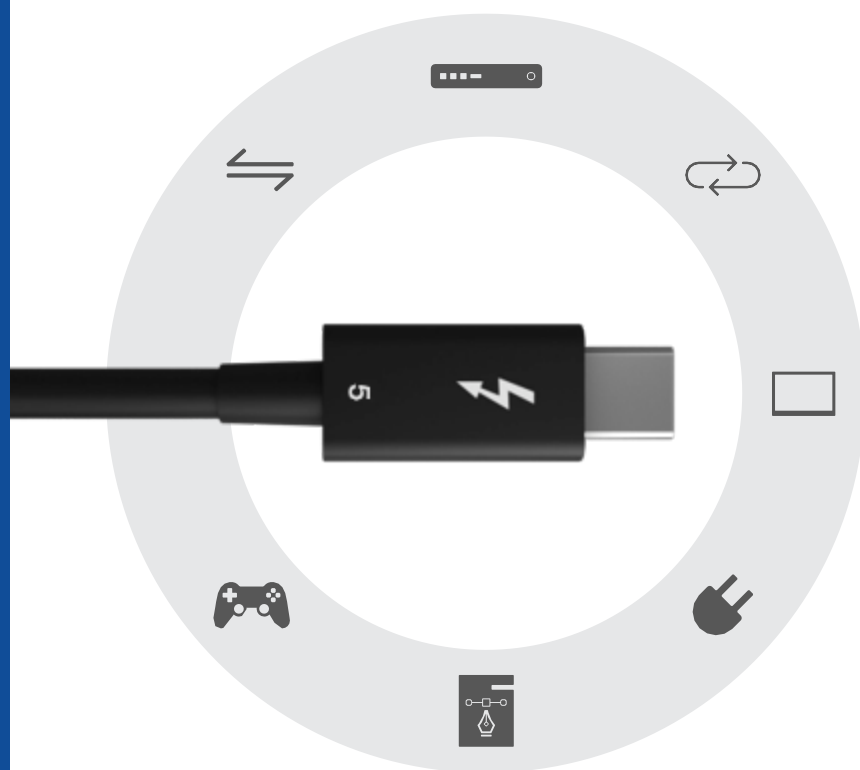
Thunderbolt™ Messaging Guide



A Single Port. A Universe of Possibilities.
September 2024

Thunderbolt™ Technology

Thunderbolt™ offers a best-in-class set of product capabilities to deliver the simplest, most reliable, and fastest cable solution available for connecting to power and any of your favorite accessories.



Comparing Thunderbolt™ Versions

Unrivaled Simplicity	Thunderbolt™ 5 Technology	Thunderbolt™ 4 Technology	USB4
One universal computer port (USB Type-C)	▪	▪	
Universal cables up to 2 meters in length	120 Gbps	40 Gbps	Optional
Accessories with four Thunderbolt ports	▪	▪	
Reliable Connectivity	Thunderbolt™ 5 Technology	Thunderbolt™ 4 Technology	USB4
Mandatory certification for all shipping computers, accessories, and cables	▪	▪	
Cable testing and cable quality audits for Thunderbolt cable manufacturers	▪	▪	
Required Intel® VT-d-based DMA protection ¹	▪	▪	
USB4 specification compliance required	▪	▪	
Exceptional Performance	Thunderbolt™ 5 Technology	Thunderbolt™ 4 Technology	USB4
PC speed requirements	80 and 120 Gbps	40 Gbps	20 Gbps
PC video requirements	Dual 6K	Dual 4K	One monitor (No minimum bandwidth)
PC data requirements	PCIe: 64 Gbps USB 3: 10 Gbps ²	PCIe: 32 Gbps USB 3: 10 Gbps	----- USB 3: 10 Gbps
Required PC charging on at least one computer port ³	Required up to 140W Available up to 240W	Required up to 100W Available up to 140W	
Required PC wake from sleep when computer is connected to a Thunderbolt dock	▪	▪	
Minimum PC port power for accessories	15W	15W	7.5W
Thunderbolt networking ⁴	64 Gbps	32 Gbps	

1. Or equivalent when utilizing a non-Intel CPU.

2. Available up to USB 3: 20 Gbps.

3. Thunderbolt 4 is required for thin and light notebooks that require less than 100W to charge via the Thunderbolt connection. Thunderbolt 5 is required for thin and light notebooks that require less than 140W to charge via the Thunderbolt connection and is able to be designed to deliver up to 240W.

4. Maximum theoretical bandwidth, realized performance dependent on specific hardware and software configuration.

Legal Notice

Specific legal disclaimers, use when applicable.

General Disclaimer for “Fastest Connection” claim

As compared to other PC I/O connection technologies including eSATA, USB, and IEEE 1394 Firewire. Performance will vary depending on the specific hardware and software used. Must use a Thunderbolt-enabled device.

General Disclaimer for “Any Display” claim

Thunderbolt™ 4 and Thunderbolt 5 provide DisplayPort, which can natively connect to all displays with DisplayPort and mini-DisplayPort, and via adapters can connect to all other modern display interfaces, including HDMI, DVI, and VGA.

Up to 3x faster claim

Calculations are based on the theoretical maximum total bandwidth of the Thunderbolt™ 4 and Thunderbolt 5 solutions and compare Thunderbolt 4 at 40 Gbps to Thunderbolt 5 at 120 Gbps for transmit.

2x faster file transfers claim

Calculations are based on the theoretical maximum PCI Express bandwidth of the Thunderbolt™ 4 and Thunderbolt 5 solutions and compare Thunderbolt 4 at 32 Gbps to Thunderbolt 5 at 64 Gbps for transmit/receive.

2x more bandwidth to external GPUs claim

Calculations are based on the theoretical maximum PCI Express bandwidth of the Thunderbolt™ 4 and Thunderbolt 5 solutions and compare Thunderbolt 4 at 32 Gbps to Thunderbolt 5 at 64 Gbps for transmit/receive.

Standard legal disclaimers, always required at beginning or end of materials

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Unrivalled Simplicity

Supporting Messages

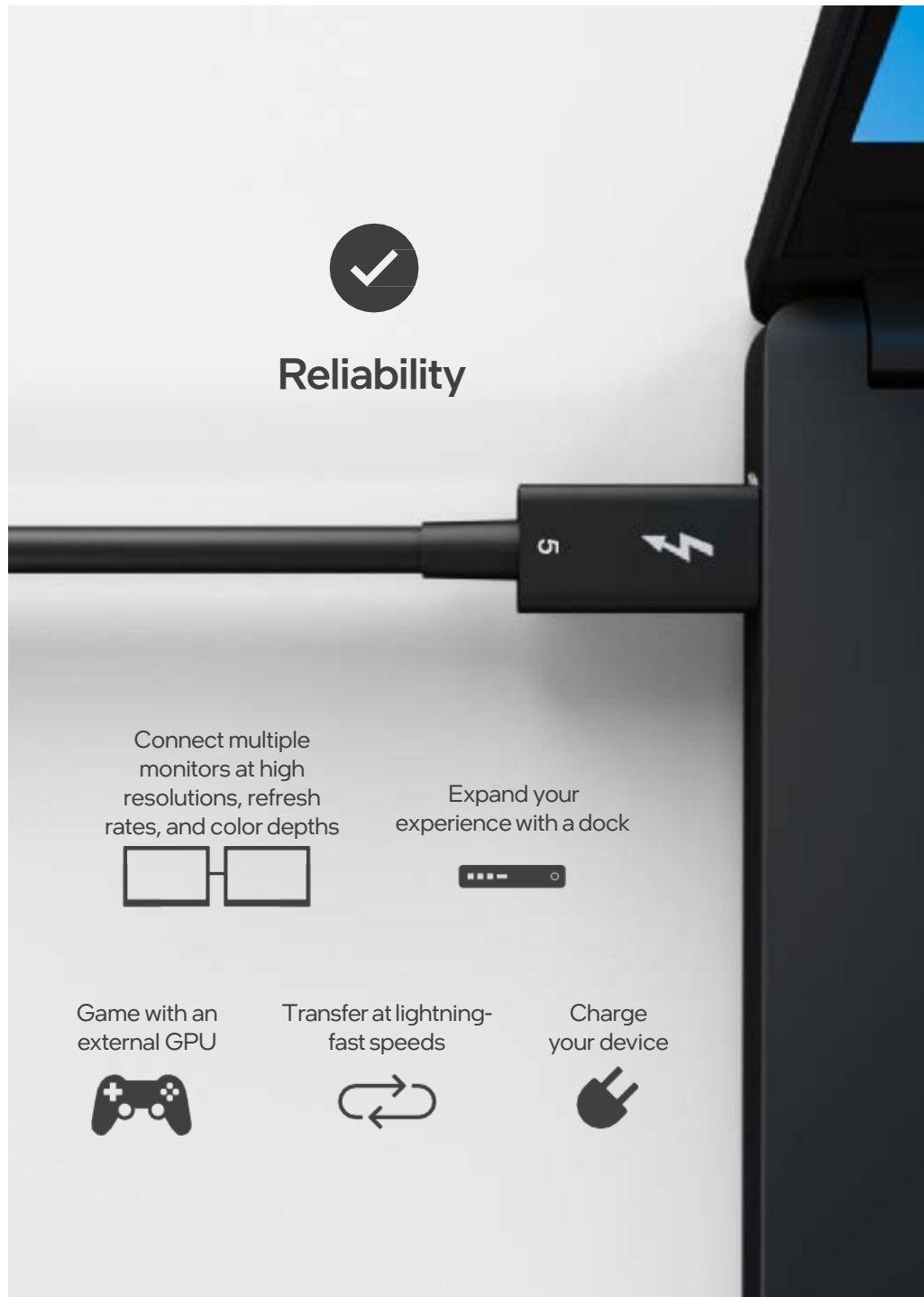
To simplify computer and compatible accessory purchases, just look for the Thunderbolt™ logo. Thunderbolt computers and accessories are certified to work together to ensure a good user experience.

For compatibility between computers, cables, and accessories, just look for the Thunderbolt™ logo.

Thunderbolt™ provides one universal computer port for problem-free connectivity to power, monitors, and accessories.

Thunderbolt™ provides a simple, standardized connection with one flippable, reversible cable to deliver a great user experience and keep pace with the evolving workforce.





Learn more performance details [here](#). Results may vary.

Reliable Connectivity

Supporting Messages

Thunderbolt™ ports, cables, and accessories are certified to help improve reliability and compatibility across all Thunderbolt products.

Thunderbolt™ requires mandatory certification to help ensure a consistent user experience across a wide range of product types and manufacturers.

Thunderbolt™ 4, which provides 40 Gbps throughput, is designed for compatibility with current and future devices.

Thunderbolt™ 5 provides bandwidth up to 120 Gbps, enabling unparalleled display experiences while maintaining compatibility with current and future devices.

Maximum Performance

Supporting Messages

At a maximum of 120 Gbps, Thunderbolt™ 5 is the fastest port available on a computer—unleashing the power of your computer processor by maximizing data and video performance.

Thunderbolt™ 5 computers help redefine the modern workspace by offering maximum performance, laptop charging, and up to four Thunderbolt ports to expand your computer's capabilities in a small footprint.

Thunderbolt™ 4 unleashes the power of your computer processor by offering up to 40 Gbps of data and video performance.



Learn more performance details [here](#). Results may vary.

Thunderbolt™ 5: A Massive Leap in Performance

**Accelerate everything—
seamlessly and flexibly!**

Significantly Raising the Performance Bar

Thunderbolt™ 5 delivers up to 3x more bandwidth (120 Gbps) compared to Thunderbolt 4 to accelerate all your PC experiences.

Unparalleled Visual Display Experiences

Thunderbolt™ 5 enables you to connect more monitors at higher resolutions and faster refresh rates than ever before for uncompromised display experiences.

Blazingly Fast Storage Performance

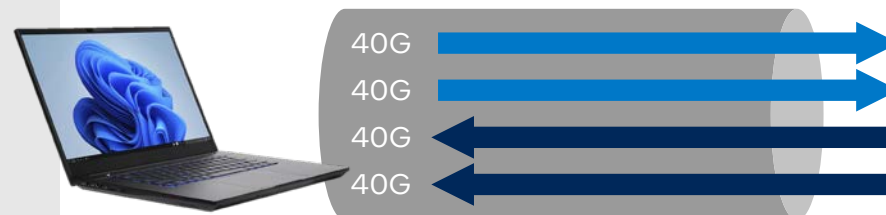
Experience 2x SSD data transfer speeds to accelerate storage-intensive applications with Thunderbolt™ 5.

Accelerated External GPU Performance

Thunderbolt™ 5 speeds digital content creation and enables more immersive gaming experiences with 2x data throughput for external GPUs.

Evenly distributed

80 Gbps of bandwidth in each direction

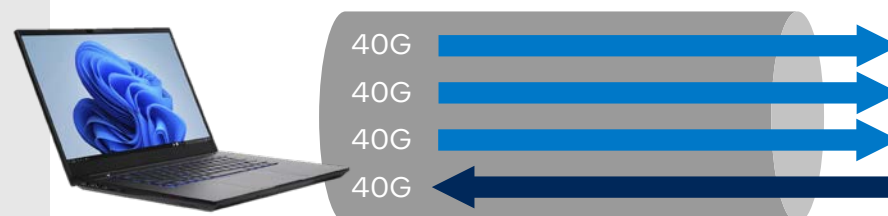


Connection provides:

- Transmit: Up to **80 Gbps**
- Receive: Up to **80 Gbps**

Bandwidth Boost

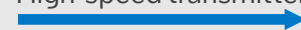
120 Gbps for higher display bandwidth needs



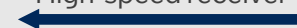
Connection provides:

- Transmit: Up to **120 Gbps**
- Receive: Up to **40 Gbps**

High-speed transmitter



High-speed receiver



Flexible Bandwidth Capability

Beyond providing twice the overall bandwidth of Thunderbolt™ 4, Thunderbolt 5 enables flexible, intelligent utilization of potentially unused bandwidth. When evenly distributed, you get 80 Gbps of upstream bandwidth and downstream bandwidth. But when a high volume of video traffic is detected, Thunderbolt 5 can dedicate 120 Gbps of transmit bandwidth for unparalleled display experiences, while providing 40 Gbps of receive bandwidth.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ Share

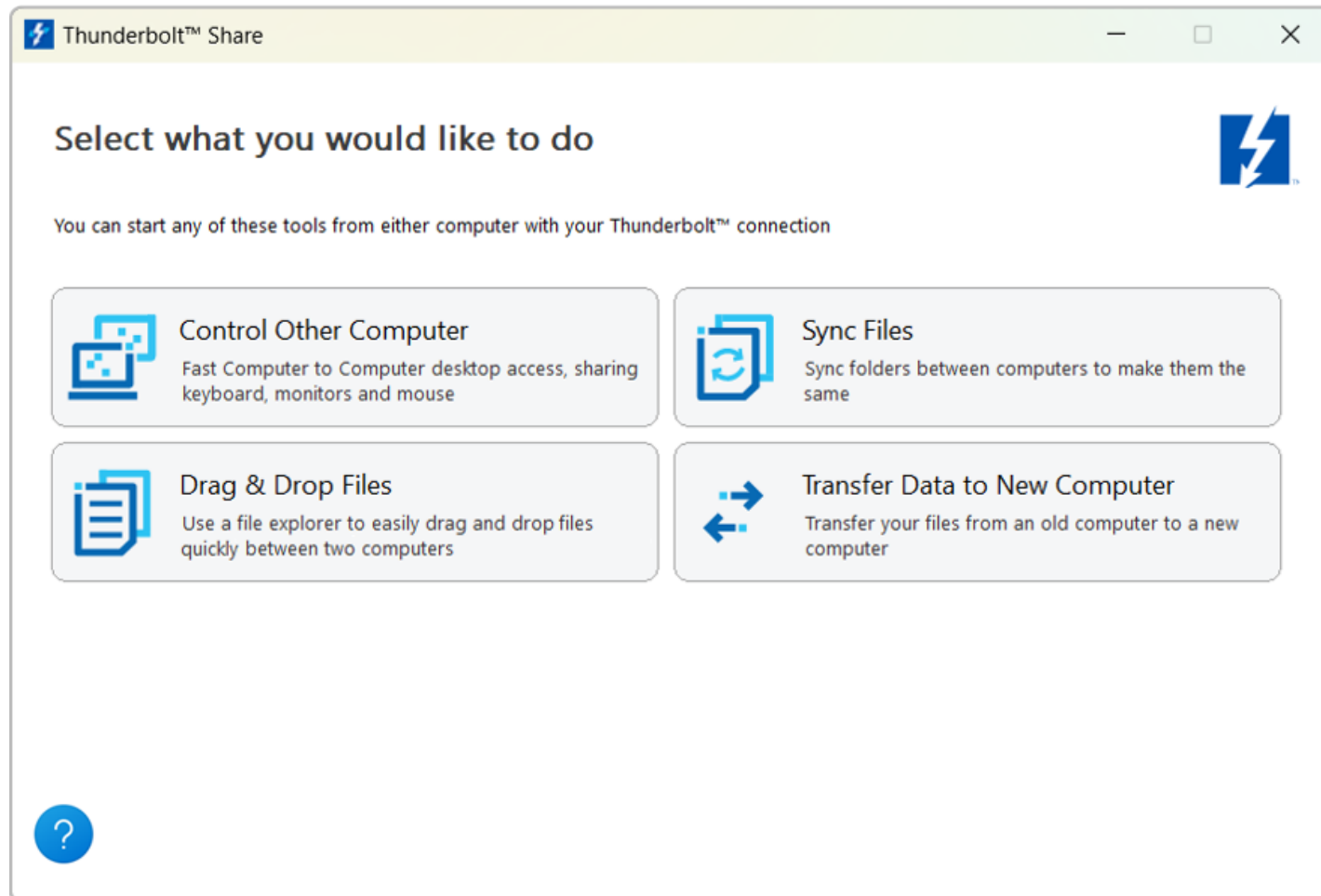


Thunderbolt™ Share unlocks ultra-fast, secure PC-to-PC connectivity experiences that fundamentally change the way users interact with two PCs. An intuitive, easy-to-use interface enables more productive workflows, while maximizing workspace and performance when connecting two PCs.

Thunderbolt™ Share is offered with select new Thunderbolt™ PCs and accessories, and works with all Thunderbolt™ 4 or Thunderbolt™ 5 products on Windows® OS.

Learn more performance details [here](#). Results may vary.

Powered by Thunderbolt™



Thunderbolt offers a best-in-class set of product capabilities to deliver the simplest, most reliable, and fastest cable solution available for connecting a PC to displays or your favorite accessories, for charging a PC, or connecting to a second PC with Thunderbolt™ Share. Thunderbolt Share takes advantage of the industry-leading performance of Thunderbolt to deliver extraordinary bandwidth and low latency for a responsive and seamless experience.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ Share

Easy, Fast, and Efficient. Do More With Two PCs.

Thunderbolt™ Share is an exciting new software solution from Intel enabling fast PC-to-PC connectivity experiences.

Easy

Easy with Thunderbolt™ Share

Thunderbolt™ Share makes it easier than ever to connect two PCs; all you need is a Thunderbolt™ port and cable.

Transfer Files or Backup with Ease

Use the Thunderbolt™ Share file application to have an easy and simple interface for dragging and dropping individual files or whole folders between your connected PCs.

Share Storage Devices

With Thunderbolt™ Share, any external storage connected to one PC can be accessed from another for easy, immediate access.

Fast

Share at the Speed of Thunderbolt™

Thunderbolt™ Share takes advantage of Thunderbolt™ 4 or 5 performance to deliver extraordinary bandwidth and low latency.

Less Time Waiting

Thunderbolt™ Share is a fast way to transfer files or entire folders. Do you have hundreds of gigabytes of videos or a new game package to install? No problem. With Thunderbolt Share, it takes a fraction of the time to transfer files.

Smooth Screen Sharing

Thunderbolt™ Share takes advantage of Thunderbolt's low latency screen sharing for extraordinarily seamless visual experiences.

Pixel Accurate

Thunderbolt™ Share lets you share screens with no loss of pixels while maximizing color representation.

No lagging around

Thunderbolt™ Share delivers ultra-responsive mouse and keyboard experiences when controlling applications running on a second PC.

Efficient

More Productivity

Two PCs can be better than one. Connecting two PCs with Thunderbolt™ Share helps improve your multitasking and productivity.

Better Ergonomics

Thunderbolt™ Share PC-to-PC capabilities reduce the need for extra monitors, keyboards, and mice, to improve user comfort.

Save Space, Save Money

Thunderbolt™ Share enables you to simultaneously use the same keyboard, mouse, and monitor across two PCs, saving space and money when sharing peripherals.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ Share User Segments



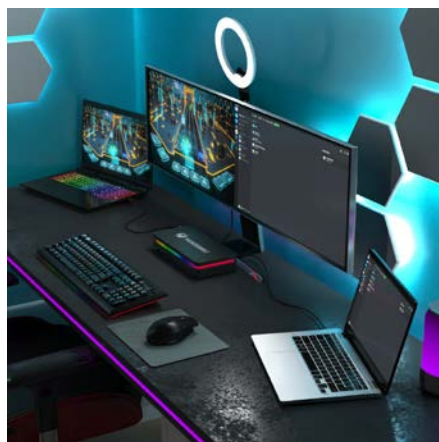
Creator

Thunderbolt™ Share enables simultaneous multitasking in a multi-PC workflow with shared peripherals.

Thunderbolt™ Share improves productivity by separating PC workloads and workflows.

Thunderbolt™ Share enables high-speed, responsive, and local file transfer access for collaboration between PCs.

Thunderbolt™ Share improves productivity in multi-PC workflows with shared application access and high-speed storage collaboration.



Gamer

Thunderbolt™ Share enables peripheral sharing in multi-PC environments to save space and boost productivity.

Thunderbolt™ Share enables simultaneous gaming and streaming on one PC, while multitasking with a second PC.

Thunderbolt™ Share lets you transfer game titles or whole libraries across PCs at lightning speed.

Thunderbolt™ Share provides the convenience of sharing preferred peripherals in multi-PC setups, optimizing for gaming, streaming, and personal usage.

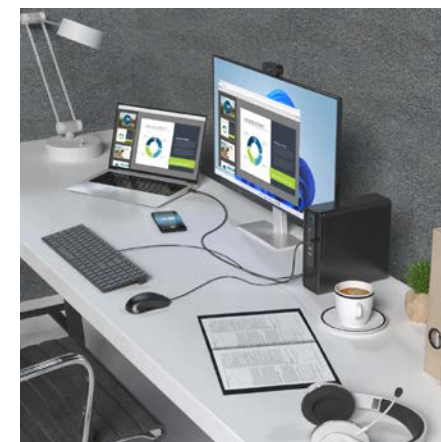


Consumer

Thunderbolt™ Share enables you to easily share multiple PCs in your family PC environment.

Thunderbolt™ Share provides access to a full-sized monitor, keyboard, and mouse on demand.

Thunderbolt™ Share lets you multitask and share peripherals while maintaining separation between your work PC and your home PC.



Business

Thunderbolt™ Share enables you to share accessories at a single-user station across multiple PCs.

Thunderbolt™ Share enables you to securely connect PCs that are not on the same network for personal use or for IT service.

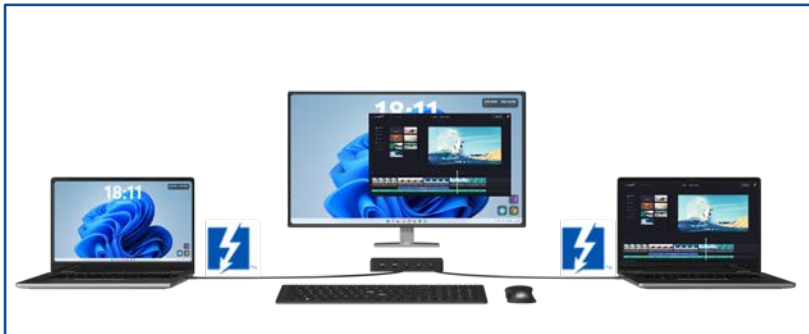
Thunderbolt™ Share enables you to maximize productivity in mixed PC environments.

Thunderbolt™ Share: Flexible Configurations

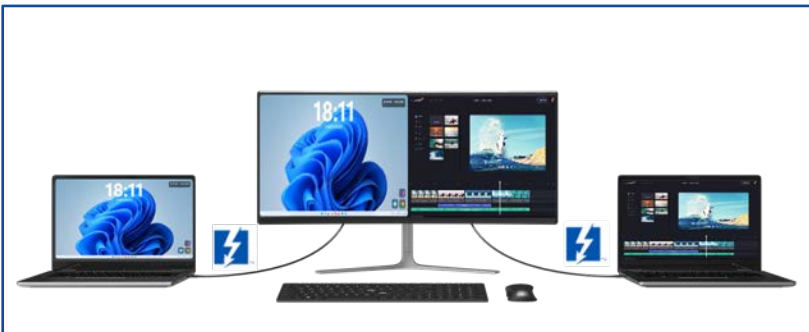
Thunderbolt™ Share takes advantage of the flexible configurations offered by Thunderbolt™ technology. Easily connect two Thunderbolt™-enabled PCs directly with a Thunderbolt™ cable, or with a Thunderbolt™ accessory.



**Directly between two
Thunderbolt-enabled PCs**



Via a Thunderbolt dock



Via a Thunderbolt monitor

Learn more performance details [here](#). Results may vary.

Thunderbolt™ Share Key Benefits



Fast PC-to-PC access for sharing screen/monitor, keyboard, mouse, and storage



Sync folders or drag-and-drop files between PCs with the speed of Thunderbolt™



Quickly transfer data and files from an old computer to a new computer



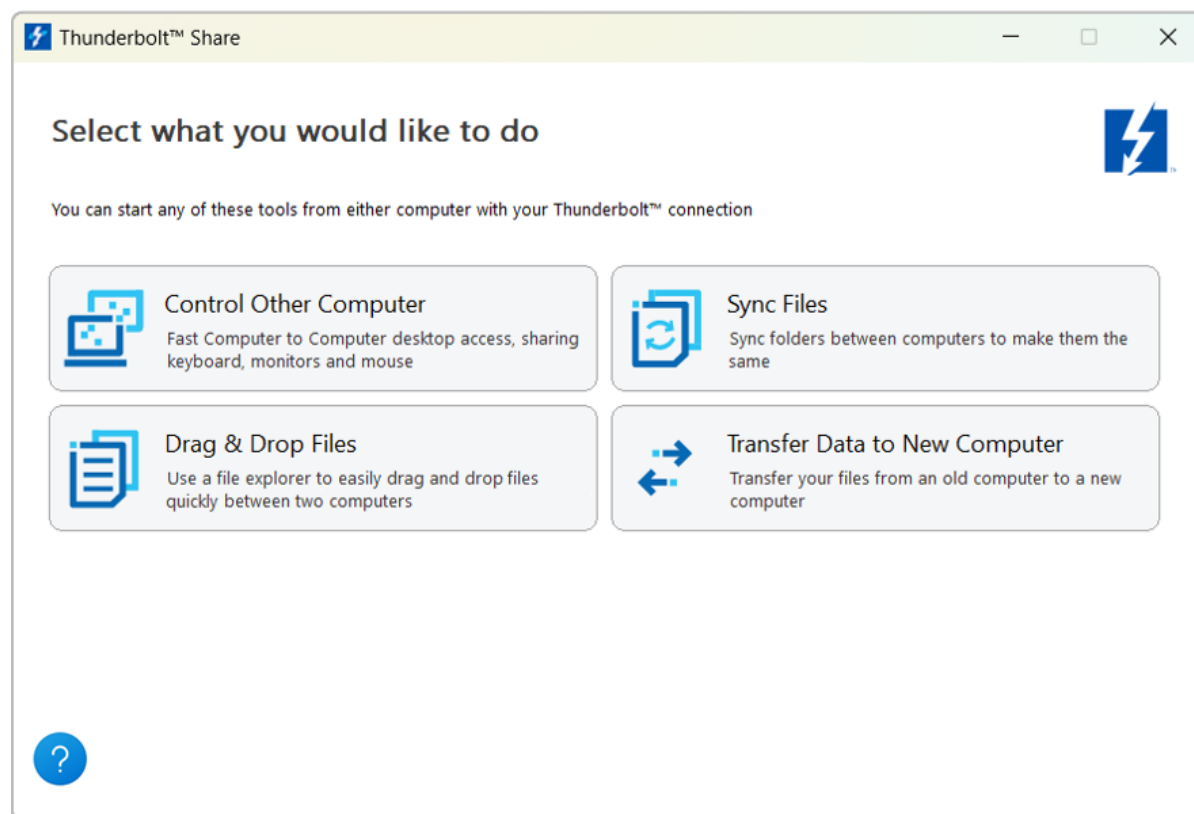
Super fast connection with high bandwidth and ultra-low latency



Hardware-based Thunderbolt™ security

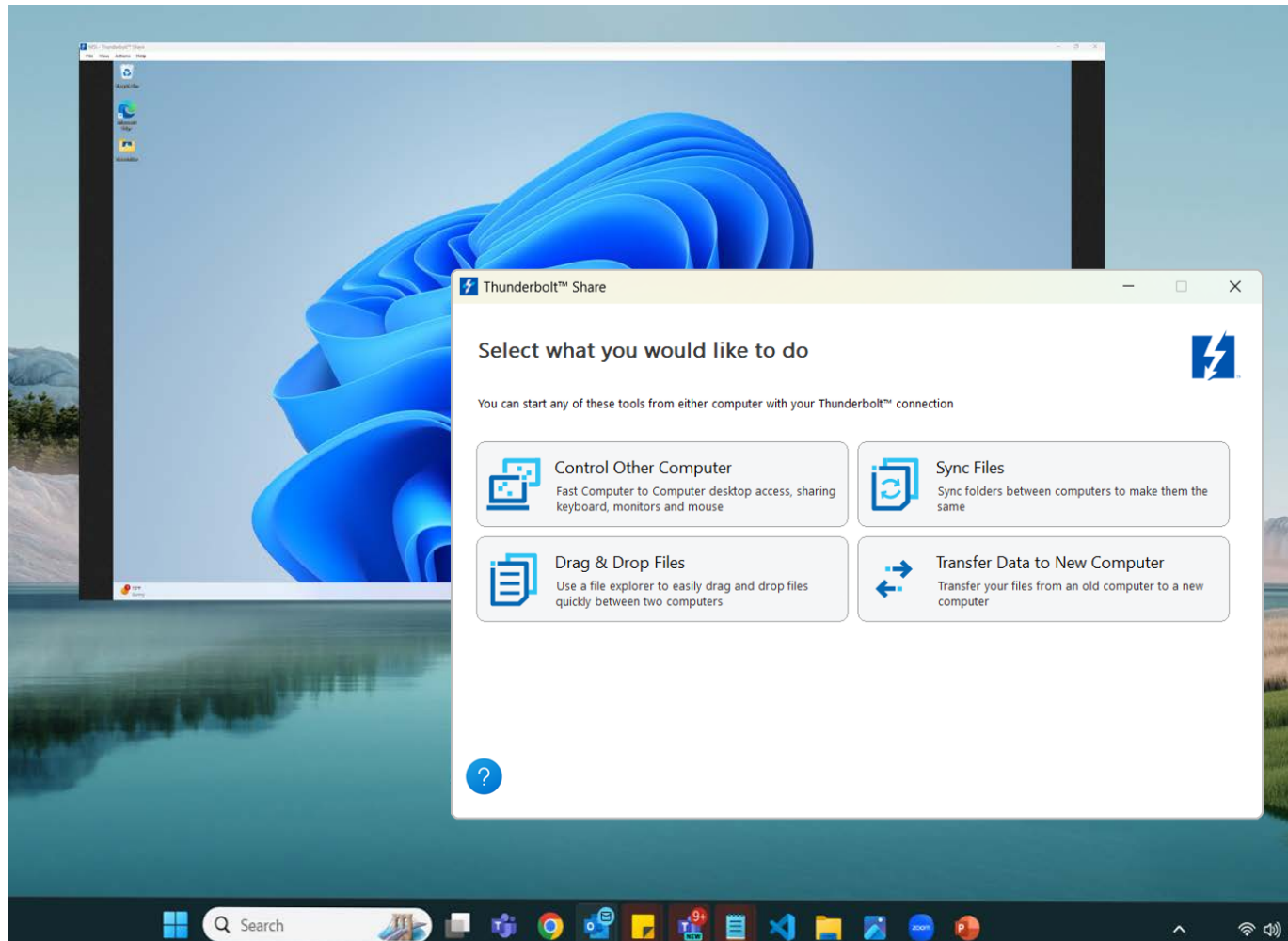


Offered with select new Thunderbolt™ PCs and accessories, and works with all Thunderbolt™ 4 or Thunderbolt™ 5 products on Windows® OS



Thunderbolt Share unlocks ultra-fast PC-to-PC connectivity experiences that fundamentally change the way users interact with two PCs with an intuitive, easy-to-use interface allowing for more productive workflows or maximizing space and performance, all with two PCs.

Thunderbolt™ Share: Share Screens Seamlessly

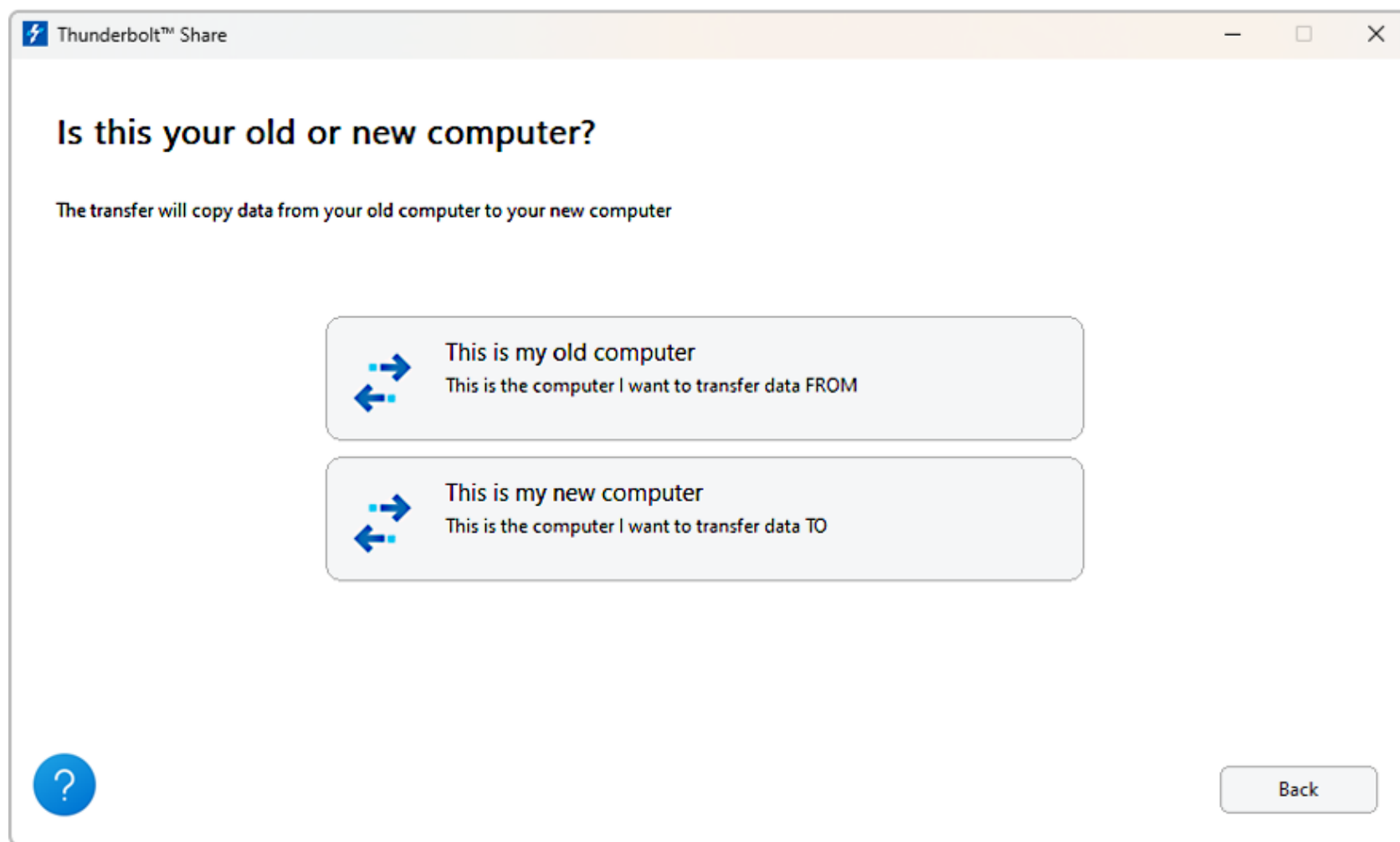


Thunderbolt™ Share allows users to control their other computer, harnessing the productivity of utilizing two computers at once.

Being able to control one PC from another PC is a powerful tool that allows users to share common peripherals and be more productive by making multitasking between two computers seamless.

Learn more performance details [here](#). Results may vary.

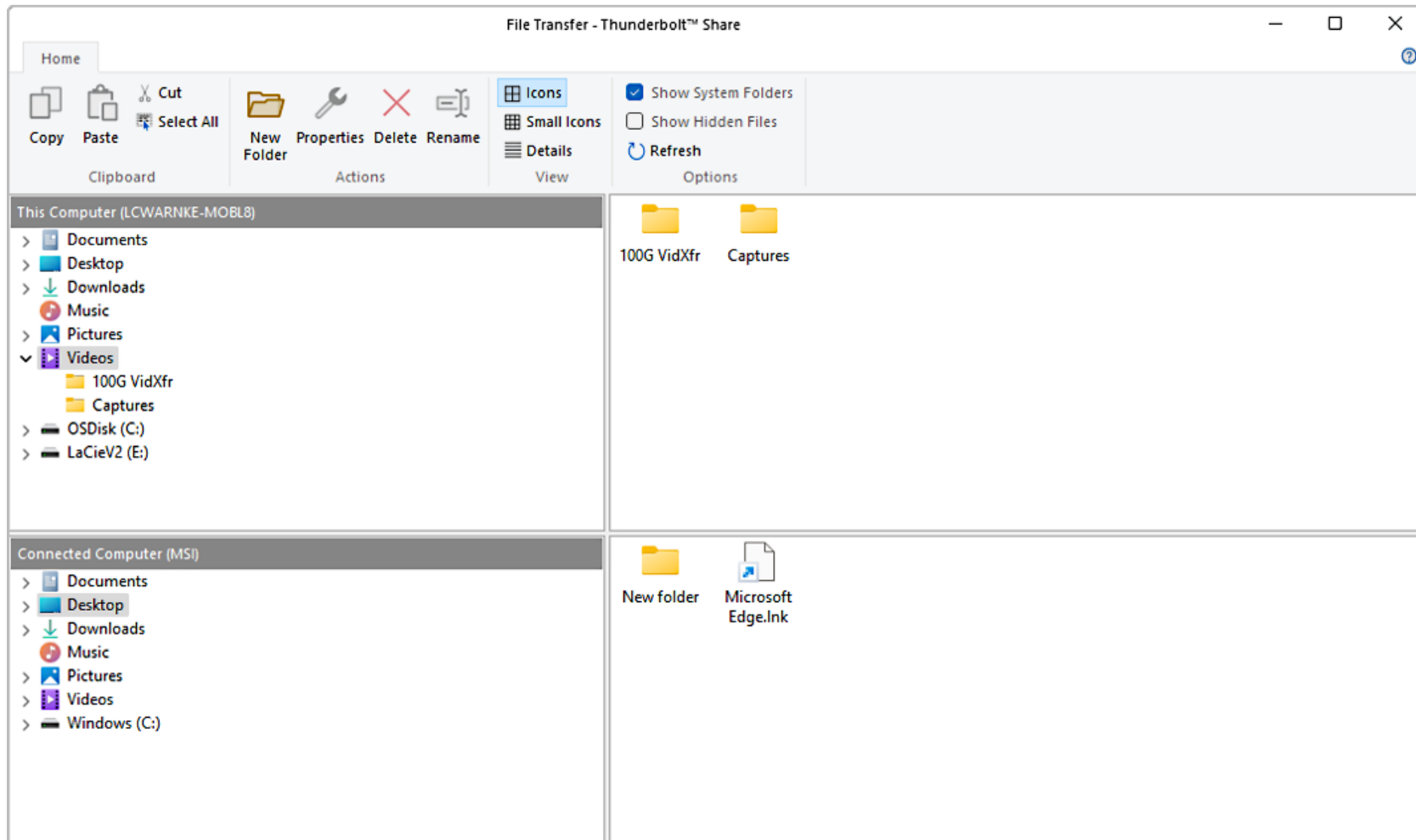
Thunderbolt™ Share: Upgrade Fast



Transferring data from an old computer to a new computer has never been easier than with Thunderbolt™ Share. Users can quickly migrate their files and folders from one computer to another computer far faster than using Wi-Fi or the Cloud.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ Share: Drag & Drop

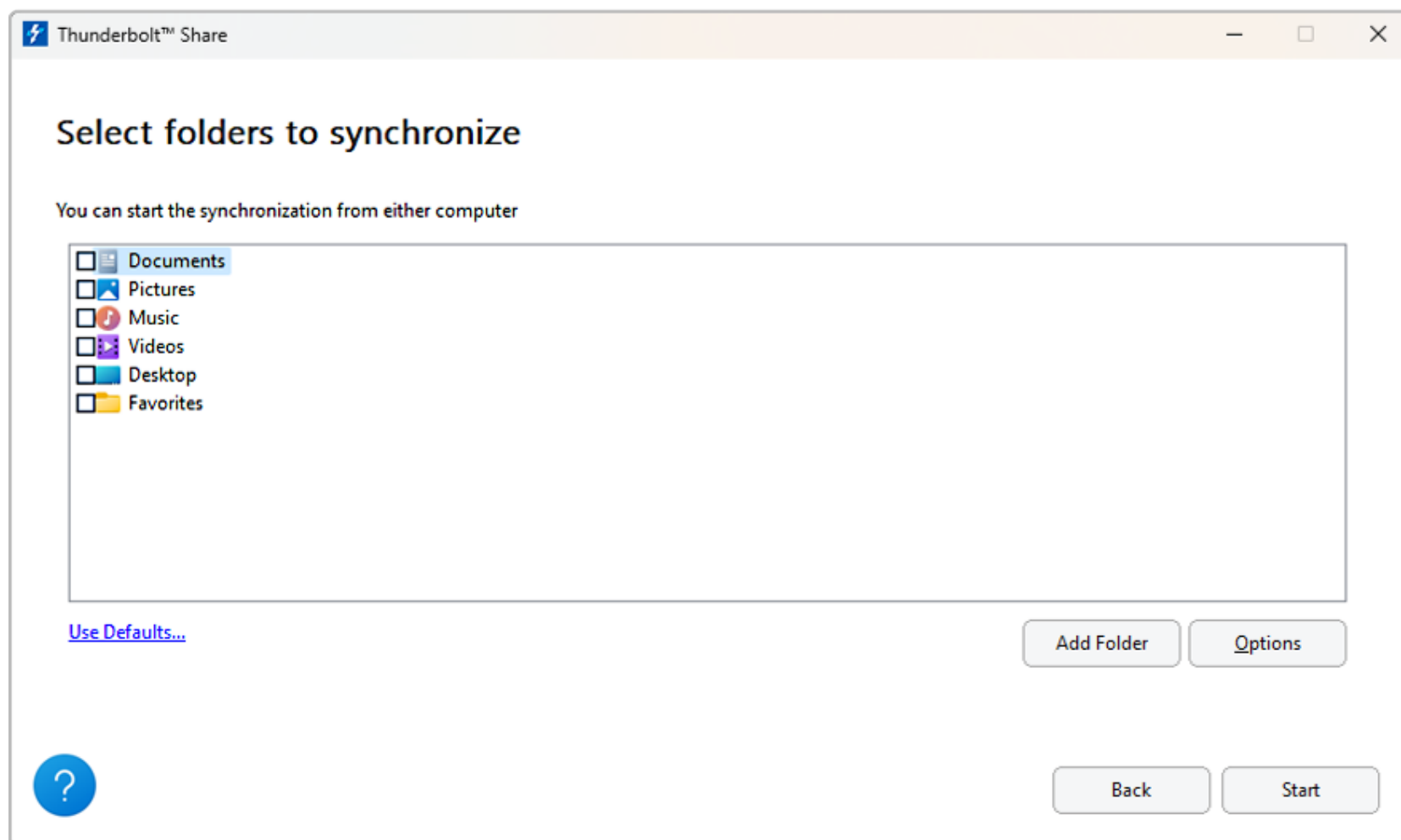


Accessing files between two PCs couldn't be more efficient. Simply drag and drop files and folders all at the speed of Thunderbolt™.

Common commands are also available, such as "copy", "paste", and "cut" for files across both of their systems.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ Share: Synchronize Files and Folders Effortlessly

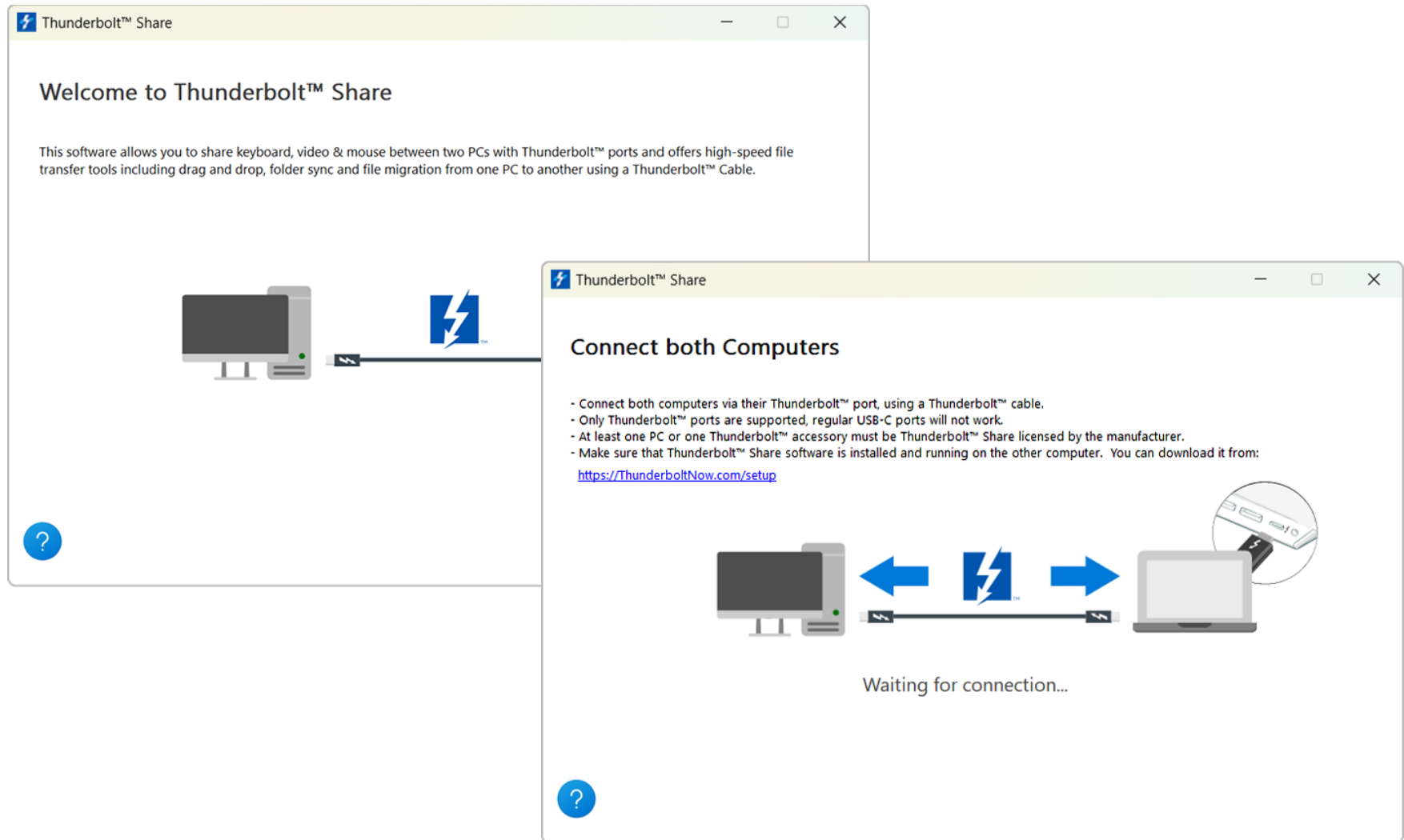


Thunderbolt™ Share gives users the power to effortlessly synchronize files and folders across two PCs.

Back-up your personal files, gaming libraries or improve workflows while working on large creative projects.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ Share: Easy Setup



Once you have downloaded the software, simply connect two PCs with a Thunderbolt™ cable to begin using Thunderbolt™ Share.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ Computers



The latest Thunderbolt™ computers offer a best-in-class set of product capabilities to deliver the simplest, most reliable, and fastest cable solution available for connecting to power and any of your favorite accessories. Expand the capabilities of your computer at work and at play.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ 4 Computers

Truly universal connectivity for work and play

Thunderbolt™ 4 computer ports offer an outstanding set of product capabilities to deliver the simplest, most reliable cable solution available for connecting to power and your favorite accessories, while providing outstanding performance to support all the needs of mainstream users. Use your computer anywhere and then easily connect it with a single, flippable, and reversible cable to enjoy a Thunderbolt dock, larger monitors, and a variety of accessories, all while charging your computer.

Unrivaed Simplicity

Simplify with Thunderbolt™ 4

To simplify computer and accessory purchases, just look for the Thunderbolt™ logo.

Simple Connection, Many Possibilities

Thunderbolt™ 4 takes the guesswork out of selecting the right solution for charging your laptop and connecting to docks, monitors, storage, or any USB accessory.

Simplicity Standardized

Thunderbolt™ 4 provides a simple, standardized connection with one flippable, reversible cable to deliver a great user experience and keep pace with the evolving workforce.

Reliable Connectivity

Reliable Performance, Future Ready

Thunderbolt™ 4 computer ports are 40 Gbps and designed for compatibility with current and future devices.

One Reliable Solution Does it All

Thunderbolt™ 4 ports, cables, and accessories are certified to help ensure reliability and provide confidence your accessories and computer will work well together.

Industry-Leading Reliability

Thunderbolt™ 4 requires mandatory certification to help ensure a consistent user experience across a wide range of product types and manufacturers.

Outstanding Performance

Redefine your Workspace

Thunderbolt™ 4 computers redefine the modern workspace by offering outstanding performance, laptop charging, and up to four Thunderbolt ports to expand your computer capabilities in a small footprint.

Always Fast

At 40 Gbps, Thunderbolt™ 4 delivers outstanding performance.

Outstanding Performance

Thunderbolt™ 4 unleashes the power of your computer processor by offering up to 40 Gbps of data and video performance.

Faster Data Transfer

Thunderbolt™ 4 delivers more bandwidth for high-speed transfer of video, photo, and music files.

Thunderbolt™ 5 Computers

Unparalleled speed and simplicity for work and play

Thunderbolt™ 5 computer ports offer a best-in-class set of product capabilities to deliver the simplest, most reliable, and fastest cable solution available for connecting to power and your favorite accessories while at work or home. Use your computer anywhere and then easily connect it with a single, flippable, and reversible cable to enjoy a Thunderbolt dock, larger monitors, and a variety of accessories, all while charging your computer.

Maximum Performance

Redefine your Workspace

Thunderbolt™ 5 computers redefine the modern workspace by offering maximum performance, laptop charging, and up to four Thunderbolt ports to expand your computer capabilities in a small footprint.

Always Fast

At up to 120 Gbps, Thunderbolt™ 5 is the fastest port you can get on a computer.

Maximum Performance

Thunderbolt™ 5 unleashes the power of your computer processor by offering up to 120 Gbps of data and video performance for ultra-fast file transfers and unparalleled display experiences.

Faster Data Transfer

Thunderbolt™ 5 delivers more bandwidth for high-speed transfer of video, photo, and music files.

Unrival Simplicity

Simplify with Thunderbolt™ 5

To simplify computer and accessory purchases, just look for the Thunderbolt™ logo.

Simple Connection, Many Possibilities

Thunderbolt™ 5 takes the guesswork out of selecting the right solution for charging your laptop and connecting to docks, monitors, storage, or any USB accessory.

Simplicity Standardized

Thunderbolt™ 5 provides a simple, standardized connection with one flippable, reversible cable to deliver a great user experience and to keep pace with the evolving workforce.

Reliable Connectivity

Reliable Performance, Future Ready

Thunderbolt™ 5 computers will support up to 120 Gbps of bandwidth and are designed for compatibility with current and future devices.

One Reliable Solution Does It All

Thunderbolt™ 5 ports, cables, and accessories are certified to help ensure reliability and provide confidence your accessories and computer will work well together.

Industry-Leading Reliability

Thunderbolt™ 5 requires mandatory certification to help ensure a consistent user experience across a wide range of product types and manufacturers.

Thunderbolt™ Computer Market Segments

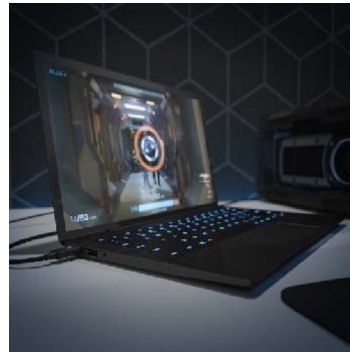
Consumers



Creators



Gamers



SMB



Enterprise



Click on a market segment for context-specific messages.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ 4 Computers for Consumers

A simple, reliable, fast solution

Thunderbolt™ 4 provides simple, reliable, and fast connectivity. Connect your computer to a wide range of accessories and expand your workspace experience with larger monitors and more accessories using a Thunderbolt dock, all while charging your computer.

Unrivaled Simplicity

Simplify with Thunderbolt™ 4

To simplify computer and accessory purchases, just look for the Thunderbolt™ logo.

Simple Connection, Many Possibilities

Thunderbolt™ 4 takes the guesswork out of selecting the right solution for charging your laptop and connecting to docks, monitors, storage, or any USB accessory.

Expand Your Experience with Ease

Stream videos, play games, and make video calls with ease. A single Thunderbolt™ 4 flippable and reversible cable simply connects your computer to your monitor, webcam, and other accessories.

Connectivity Simplified

Just one Thunderbolt™ 4 connection provides reliable laptop charging, allows you to view your content on a larger monitor, and connects you to all your favorite accessories.

Reliable Connectivity

Reliable Connectivity with Thunderbolt™

Thunderbolt™ 4 cables and accessories are tested and certified to promote interoperability you can depend on.

Reliability You Can Count On

Thunderbolt™ 4 certification offers peace of mind, and helps ensure your laptop and accessories work together.

Reliable Performance, Future Ready

Thunderbolt™ 4, which provides 40 Gbps throughput, is designed for compatibility with current and future devices.

Outstanding Performance

Performance Unleashed

Thunderbolt™ 4 unleashes the power of your computer processor by offering up to 40 Gbps of data and video performance.

Great for Today, Ready for Tomorrow

Computers with Thunderbolt™ 4 ports provide an easy-to-use solution with performance that can support your needs today and tomorrow.

Power and Performance on Demand

Don't let computer and accessory charging slow you down. Use Thunderbolt™ 4 to quickly charge your computer, mobile phone, and other computer-powered devices.

Enjoy Vivid Visuals

Thunderbolt™ 4 computers let you edit photos and media faster with two monitors for more visual real estate and fast connections to external storage for transferring image and video files quickly.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ 4 Computers for Creators

Redefine your creative workspace

Thunderbolt™ 4 computer ports offer an exceptional set of product capabilities to deliver the simplest, most reliable high-speed cable solution available for connecting to power and any of your favorite accessories. Create and enjoy a clutter-free desktop with Thunderbolt docks, color-accurate monitors, low-latency audio interfaces, and faster storage. Spend more time creating and less time working.

Unrivaed Simplicity

Storage Flexibility Simplified

Thunderbolt™ 4 enables you to easily connect to external storage with a single, flippable, reversible cable powered directly from the PC, reducing clutter and saving your computer's internal drive space.

Do More with One Cable Connection

Thunderbolt™ 4 helps you do more. With one flippable, reversible cable, easily connect to a higher-quality monitor and fast storage, audio and video interfaces, cameras and lighting, and even pen tablets, all while charging your computer.

Simplify with Thunderbolt™ 4

To simplify computer and accessory purchases, just look for the Thunderbolt™ logo.

Connect More, Do More

Thunderbolt™ 4 lets you add two high-performance monitors and all the accessories you need to make it easy to do more.

Reliable Connectivity

Dependable, Versatile Connectivity

Robust Thunderbolt™ 4 end-to-end testing and certification offer peace of mind, and help ensure your computer and accessories work great together.

Industry-Leading Reliability

Thunderbolt™ 4 requires mandatory certification to help ensure a consistent user experience across a wide range of product types and manufacturers.

Reliable Performance, Future Ready

Thunderbolt™ 4, which delivers 40 Gbps throughput, is designed for compatibility with current and future devices.

Dependable Connectivity

Travel anywhere with your entire photo, video, and music collection on portable Thunderbolt™ SSD storage, and have everything you need to produce, edit, and render your next rich-media creation.

Outstanding Performance

Create from an External SSD

Thunderbolt™ 4 is 40 Gbps, so you can connect fast external storage and open projects directly from an external Thunderbolt drive to save your computer's internal storage.

Vivid Visual Experience

Edit photos and media from your computer while connected to external Thunderbolt™ 4 storage and two 4K 60Hz monitors.

Accelerate Content Creation

Give Thunderbolt™ 4-based computers' graphics a boost with a Thunderbolt external graphics accessory for fast content creation.

Thunderbolt™ 5 Computers for Creators

Redefine your creative workspace with unparalleled performance

Thunderbolt™ 5 computer ports offer a best-in-class set of product capabilities to deliver the simplest, most reliable, and fastest cable solution available for seamlessly connecting to power and any of your favorite accessories. Create and enjoy a clutter-free desktop with Thunderbolt docks, high-resolution and color-accurate monitors, low-latency audio interfaces, and faster storage to spend more time creating and less time working. Providing 80 Gbps of bi-directional bandwidth and 120 Gbps of transmit bandwidth with Bandwidth Boost, Thunderbolt 5 is the fastest port available on a computer.

Maximum Performance

Create from an External SSD

Thunderbolt™ 5 delivers 2x the performance of Thunderbolt 4, so you can connect fast external storage and open projects directly from an external Thunderbolt drive to save your computer's internal storage.

Unparalleled Visual Display Experiences

Thunderbolt™ 5 enables you to connect more monitors at higher resolutions and faster refresh rates than ever before for uncompromised display experiences.

Accelerate Content Creation

Give Thunderbolt™ 5 computers' graphics a boost with a Thunderbolt external graphics accessory for fast content creation.

Unrivaled Simplicity

Storage Flexibility Simplified

Thunderbolt™ 5 enables you to easily connect to external storage with a single, flippable, reversible cable powered directly from the PC, reducing clutter and saving your computer's internal drive space.

Do More with One Cable Connection

Thunderbolt™ 5 helps you do more. With one flippable, reversible cable, easily connect to a larger monitor and fast storage, audio and video interfaces, cameras and lighting, and even pen tablets, all while charging your computer.

Simplify with Thunderbolt™ 5

To simplify computer and accessory purchases, just look for the Thunderbolt™ logo.

Connect More, Do More

Thunderbolt™ 5 lets you add two high-performance 8K monitors and all the accessories you need to make it easy to do more.

Reliable Connectivity

Dependable, Versatile Connectivity

Thunderbolt™ 5 robust end-to-end testing and certification offer peace of mind and help ensure your computer and accessories work great together.

Industry-Leading Reliability

Thunderbolt™ 5 requires mandatory certification to help ensure a consistent user experience across a wide range of product types and manufacturers.

Reliable Performance, Future Ready

Thunderbolt™ 5, which delivers 80 Gbps to 120 Gbps throughput, is designed for compatibility with current and future devices.

Dependable Connectivity

Travel anywhere with your entire photo, video, and music collection on portable Thunderbolt™ SSD storage, and have everything you need to produce, edit, and render your next rich-media creation.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ 4 Computers for Gamers

Immersive gaming, simplified

Thunderbolt™ 4 computer ports offer an exceptional set of product capabilities to deliver the simplest, most reliable high-speed cable solution available for connecting to power and any of your favorite accessories. Create an immersive gaming experience and reduce cable clutter with Thunderbolt docks and monitors. Add more storage capacity with speeds up to 3000 MBps to quickly load games.

Unrivaed Simplicity

Simplify with Thunderbolt™ 4

To simplify computer and accessory purchases, just look for the Thunderbolt™ logo.

Immersive Gaming, Simplified

Create an immersive gaming experience by reducing cable clutter with Thunderbolt™ 4 docks, monitors, and fast external storage.

Storage Flexibility Simplified

Thunderbolt™ 4 is 40 Gbps so you can game directly from high-speed external storage over a Thunderbolt connection and save your computer's internal storage.

Do More with One Cable Connection

Thunderbolt™ 4 helps you do more with one flippable, reversible cable that easily connects to a larger screen and fast storage, audio and video interfaces, and cameras and lighting, all while charging your computer.

Reliable Connectivity

Industry-Leading Reliability

Thunderbolt™ 4 requires mandatory certification to help ensure a consistent user experience across a wide range of product types and manufacturers.

Reliability You Can Count On

Robust Thunderbolt™ 4 end-to-end testing and certification offer peace of mind and help ensure your computer and accessories work together.

Outstanding Performance

Game from an External SSD

Thunderbolt™ 4 is 40 Gbps so you can connect fast external storage and game directly from an external Thunderbolt SSD to save your computer's internal storage.

Flexibility and Performance

Thunderbolt™ 4 is 40 Gbps for recording, editing, and sharing gameplay videos, screenshots, and livestreams on YouTube or Twitch, or for connecting with friends over Discord while gaming with ease.

Level-Up with Thunderbolt™

Turn your everyday Thunderbolt™ 4 computer into a blazingly fast gaming machine with Thunderbolt external graphics.

Vivid Visual Experience

Thunderbolt™ 4 lets you game and stream from your computer while connected to external storage and 4K 60Hz monitors.

Thunderbolt™ 5 Computers for Gamers

Amazingly responsive gaming, simplified

Thunderbolt™ 5 computer ports offer a best-in-class set of product capabilities to deliver the simplest, most reliable, and fastest cable solution available for connecting to power and any of your favorite accessories. Create an immersive gaming experience and reduce cable clutter with Thunderbolt docks and monitors. At a minimum of 80 Gbps (up to a maximum of 120 Gbps with Bandwidth Boost), Thunderbolt 5 is the fastest port available on a computer. Add more storage capacity with speeds up to 6000 MBps to quickly load games.

Maximum Performance

Game from an External SSD

Thunderbolt™ 5 provides 64 Gbps of available storage bandwidth, so you can connect fast external storage and game directly from an external Thunderbolt SSD to save your computer's internal storage.

Flexibility and Performance

Thunderbolt™ 5 provides up to 120 Gbps for recording, editing, and sharing gameplay videos, screenshots, and livestreams on YouTube or Twitch, or for connecting with friends over Discord while gaming with ease.

Level-Up with Thunderbolt™

Turn your everyday Thunderbolt™ 5 computer into a blazingly fast gaming machine with Thunderbolt external graphics.

Vivid Visual Experience

Thunderbolt™ 5 lets you game and stream from your computer while connected to external storage and 8K 60Hz monitors.

Unrivalled Simplicity

Simplify with Thunderbolt™ 5

To simplify computer and accessory purchases, just look for the Thunderbolt™ logo.

Immersive Gaming, Simplified

Create an immersive gaming experience by reducing cable clutter with Thunderbolt™ 5 docks, monitors, and fast external storage.

Storage Flexibility Simplified

Thunderbolt™ 5 is 80 Gbps to 120 Gbps, so you can game directly from high-speed external storage over a Thunderbolt connection and save your computer's internal storage.

Do More with One Cable Connection

Thunderbolt™ 5 helps you do more with one flippable, reversible cable that easily connects to a larger screen and fast storage, audio and video interfaces, and cameras and lighting, all while charging your computer.

Reliable Connectivity

Industry-Leading Reliability

Thunderbolt™ 5 requires mandatory certification to help ensure a consistent user experience across a wide range of product types and manufacturers.

Reliability You Can Count On

Robust Thunderbolt™ 5 end-to-end testing and certification offer peace of mind, and help ensure your computer and accessories work together.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ 4 Computers for SMB

Get it all done, and fast

Thunderbolt™ enables you to create a more productive and secure work experience, whether in the office or working from home. It's the simplest, most reliable high-speed cable solution available and offers an exceptional set of product capabilities. A single, flippable, reversible cable connects to power, a mouse, keyboard, external storage, webcam, and multiple monitors—all at once. Give your business the Thunderbolt advantage.

Unrivaled Simplicity

Simplify with Thunderbolt™ 4

To simplify computer and accessory purchases, just look for the Thunderbolt™ logo.

Get to Work, Fast

Thunderbolt™ 4 lets you connect to your power, external monitor, and accessories with one flippable, reversible cable letting you set up your workspace quickly and easily.

No More Desk Clutter

Thunderbolt™ 4 provides an easy-to-connect solution for a clutter-free, clean, and orderly workspace.

One Touch, and You're Good to Go

Keep your Thunderbolt™ 4 computer connected to a dock, closed and tucked away, waking it with a touch of your mouse or keyboard to get back to work quickly and efficiently.

Reliable Connectivity

Reliable Performance, Future Ready

Thunderbolt™ 4 ports are 40 Gbps and designed for compatibility with current and future devices.

Get Mobile, Fast

Reliable charging with Thunderbolt™ 4 gets your computer powered up so you can get mobile quickly.

Industry-Leading Reliability

Thunderbolt™ 4 requires mandatory certification of computers, cables, and accessories to help ensure a consistent user experience across a wide range of product types and manufacturers.

Reliability You Can Count On

Thunderbolt™ 4 robust end-to-end testing and certification offer peace of mind, and help ensure your computer and accessories work together smoothly.

Outstanding Performance

Get It All Done, and Fast

Thunderbolt™ 4 delivers an exceptional set of product capabilities, supporting two 4K monitors to deliver the visual workspace needed and the performance to get your work done quickly.

Performance on Demand

Thunderbolt™ 4 single-cable docking connects any monitor or device at home, work, or play, including high-resolution monitors and high-performance data devices, enabling performance when you need it.

Outstanding Performance

Thunderbolt™ 4 unleashes the power of your computer processor by offering up to 40 Gbps of data and video performance.

Thunderbolt™ 4 Computers for Enterprise

Future-proof your computer

Thunderbolt™ 4 offers a best-in-class set of product capabilities to deliver the simplest, most reliable high-speed cable solution available for connecting to power and any of your favorite accessories. Thunderbolt 4 computers provide a simple, standardized connection with the high I/O bandwidth to deliver the performance and capability headroom needed to keep pace with the evolving workforce. Create a more productive and secure workspace with a single, flippable, reversible cable that connects to power, a mouse, keyboard, webcam, and multiple monitors.

Unrivaled Simplicity

Simplify with Thunderbolt™ 4

To simplify computer and accessory purchases, just look for the Thunderbolt™ logo.

Expand Workspace with Ease

Connect computers to a wide range of accessories using a single, flippable, reversible Thunderbolt™ cable.

Get to Work, Fast

Thunderbolt™ 4 enables you connect to your power, external monitor, and accessories with one flippable and reversible cable, letting you set up your workspace quickly and easily.

Compatibility Simplified

Thunderbolt™ 4 requires mandatory certification to help ensure compatibility across a wide range of product types and manufacturers, simplifying purchase decisions.

Reliable Connectivity

Reliable Performance, Future Ready

Thunderbolt™ 4 ports are 40 Gbps and designed for compatibility with current and future devices.

Rest Assured, It Works

Robust end-to-end testing and certification of Thunderbolt™ 4 cables and accessories offer peace of mind and help ensure that computers and accessories work great together.

Industry-Leading Reliability

Thunderbolt™ 4 requires mandatory certification to help ensure a consistent user experience across a wide range of product types and manufacturers.

Secure Connectivity

Security for Thunderbolt™ 4 computer ports includes Intel VT-d-based DMA protection for peace of mind (or equivalent for computers utilizing non-Intel CPUs).

Outstanding Performance

Simple, Consistent Performance

Thunderbolt™ 4 is an easy-to-use solution that is 40 Gbps for consistent performance.

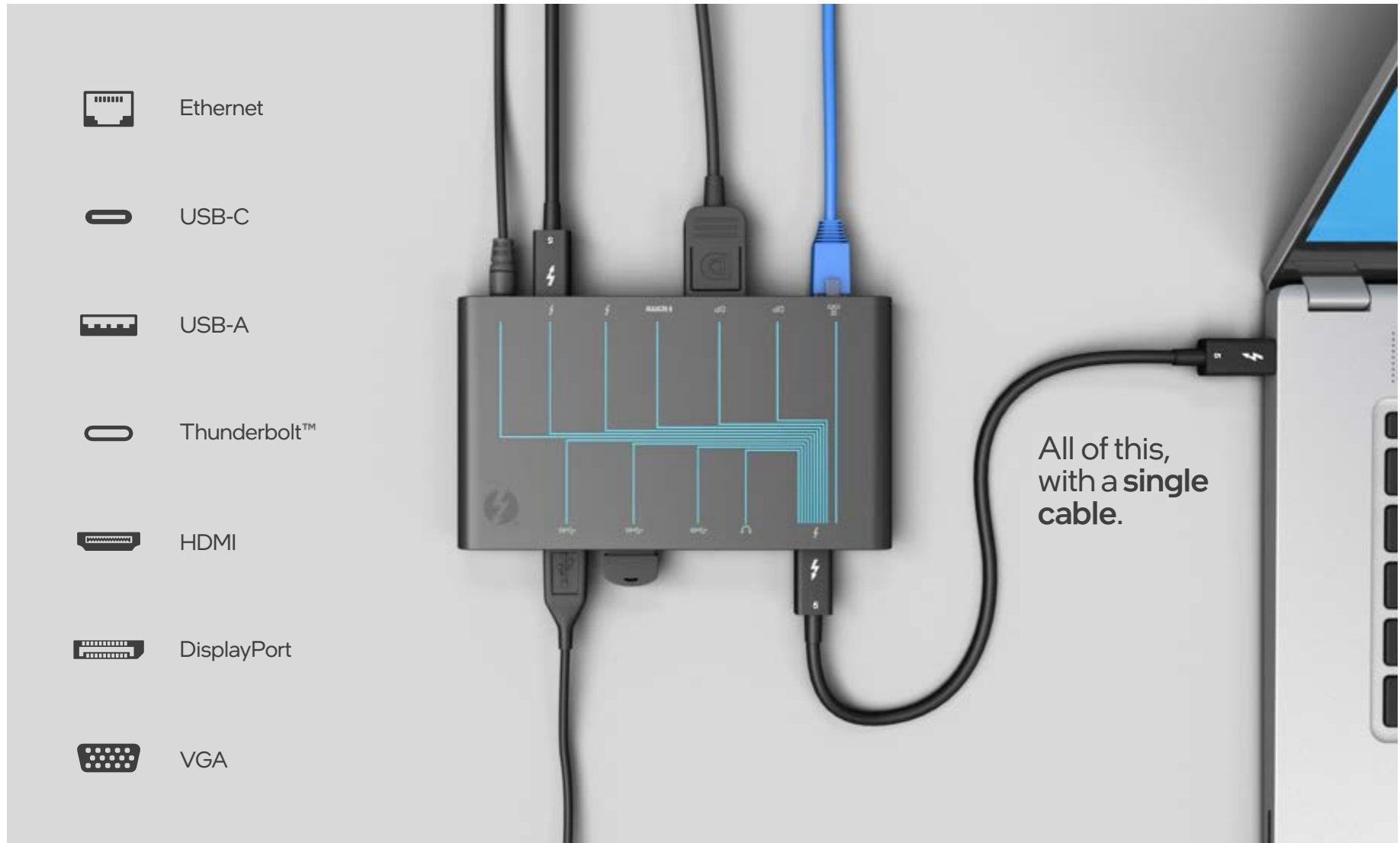
Exceptional Capabilities

Thunderbolt™ 4 offers an exceptional set of product capabilities that expands the visual workspace across two 4K monitors for smooth multitasking and the performance that helps you get your work done quickly.

Productivity and Security

Thunderbolt™ 4 creates a more productive and secure workspace with a single, flippable, reversible cable that connects to power, keyboard and mouse, webcam, and multiple monitors.

Thunderbolt™ Docks



Thunderbolt™ offers the **simplest, most reliable, and fastest docking solutions** available for connecting all the accessories on your desk with a single flippable, reversible cable.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ Dock Powering

Wall-Powered



Keep your charger in your bag. Thunderbolt™ wall-powered docks connect and charge your computer and accessories for a clutter-free, productive desk setup whether you are working, learning, or playing.

Computer-Powered



Thunderbolt™ computer-powered docks are light and versatile for an easy setup when you are on-the-go and wall power is unavailable.

Dual-Powered



Thunderbolt™ dual-powered docks provide the flexibility to use full power from the wall when available or connect your accessories when wall power is unavailable.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ 4 Docks

The best solution for a comfortable, clutter-free desktop

Thunderbolt™ 4 offers the simplest, most reliable, ultra-fast docking solutions available for connecting all the accessories on your desk with a single, flippable, reversible cable.

Unrivaed Simplicity

Easy to Use

Thunderbolt™ docks connect your favorite accessories—keyboards, mice, speakers, headphones, printers, monitors, and external storage—all through a single, flippable, reversible Thunderbolt cable.

Give Your Desk an Upgrade

Effortlessly dock to everything you need with Thunderbolt™. Easily connect to everything you need—monitors, keyboard, mouse, and more—with a single, flippable, reversible cable, all while charging your laptop for a clutter-free workspace.

One Tap and You're Good to Go

Thunderbolt™ 4 lets you wake your computer by touching your mouse or keyboard connected to your dock and get back to work quickly and efficiently.

Reliable Connectivity

Reliable Performance, Future Ready

Thunderbolt™ 4 ports are 40 Gbps and designed for compatibility with current and future devices.

Get Mobile, Fast

Reliable charging with Thunderbolt™ 4 gets your computer powered up so you can get mobile quickly.

Outstanding Performance

Get It All Done, and Fast

Thunderbolt™ 4 delivers an exceptional set of product capabilities, supporting two 4K monitors to deliver the visual workspace needed and the performance to get your work done quickly.

Performance for All Your Accessories

With 40 Gbps of bandwidth Thunderbolt™ 4 docks provide a reliable connection to multi-gigabit Ethernet connections, high-speed USB devices, Thunderbolt storage, and more.

Thunderbolt™ 5 Docks

Create a comfortable, clutter-free desktop while enjoying maximum performance

Thunderbolt™ 5 offers the simplest, most reliable, and fastest docking solutions available for connecting all the accessories on your desk with a single, flippable, reversible cable.

Maximum Performance

Get It All Done, and Fast

Thunderbolt™ 5 delivers a best-in-class set of product capabilities, supporting three 8K monitors to deliver the visual workspace and performance to get your work done quickly.

Future-Proof Your Computer

With up to 120 Gbps of bandwidth, Thunderbolt™ 5 provides the performance you need today and headroom for the future.

More Power for More Powerful Computing

Thunderbolt™ 5 docks can provide up to 240W of power to fuel even the highest-performance, most feature-rich PCs.

Unrivalled Simplicity

Easy to Use

Thunderbolt™ docks connect your favorite accessories—keyboards, mice, speakers, headphones, printers, monitors, and external storage—all through a single, flippable, reversible Thunderbolt cable.

Give Your Desk an Upgrade

Effortlessly dock to everything you need with Thunderbolt™. Easily connect to everything you need—monitors, keyboard, mouse, and more—with a single, flippable, reversible cable, all while charging your laptop for a clutter-free workspace.

One Tap and You're Good to Go

Thunderbolt™ 5 lets you wake your computer by touching your mouse or keyboard connected to your dock and get back to work quickly and efficiently.

Reliable Connectivity

Reliable Performance, Future Ready

Thunderbolt™ 5 docks, which provide 80 Gbps to 120 Gbps throughput, are designed for compatibility with current and future devices.

Get Mobile, Fast

Reliable charging with Thunderbolt™ 5 gets your computer powered up so you can go mobile quickly.

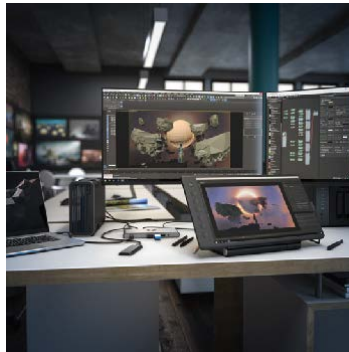
Thunderbolt™ Docks

Market Segments

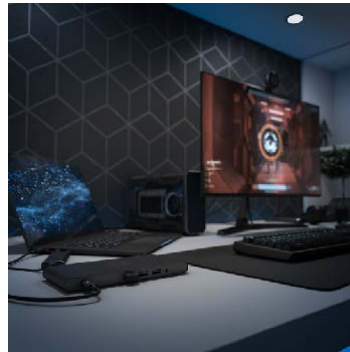
Consumers



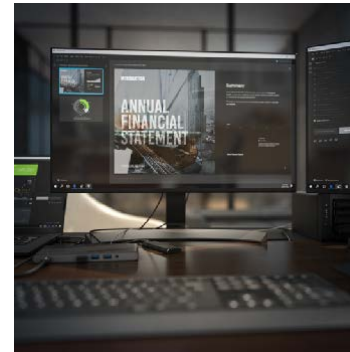
Creators



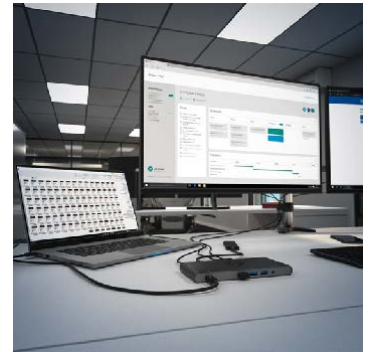
Gamers



SMB



Enterprise



Click on a market segment for context-specific messages.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ Docks for Consumers

Truly universal cable connectivity for work and play

Use your computer anywhere and then easily connect it with a Thunderbolt™ dock for video calling, streaming video, or playing games, all with a single, flippable, reversible cable. Thunderbolt offers best-in-class capabilities to deliver the simplest, most reliable, and fastest cable solution available for connecting to power and all your favorite accessories. With Thunderbolt you can focus on what really matters—staying connected with friends, family, and having fun.

Unrivaed Simplicity

So Advanced It's Effortless

Effortlessly dock to everything you need with Thunderbolt™—the most advanced single-cable docking solution available.

Set It Up Once, Then Forget About It

End cable frustration with a Thunderbolt™ dock. Set it up once and use a single, flippable, reversible cable to connect your computer to multiple accessories.

Reliable Connectivity

Thoroughly Tested

Thunderbolt™ docks must complete a robust, end-to-end testing and certification program which offers peace of mind and helps ensure your dock and computer work together regardless of manufacturer.

Reliable Streaming

Connect to your Thunderbolt™ dock to reliably enjoy your streaming content from Netflix, Amazon Prime, iTunes, and more on a large monitor.

Maximum Performance

Maximize the Performance of Your Computer

Thunderbolt™ docks allow you to get the most out of your computer processor by offering the fastest bandwidth available to transfer your data and video files.

More Power, More Performance

Thunderbolt™ offers the most power to maximize the performance of your favorite accessories.

Thunderbolt™ 4

Wake With One Tap

Keep your Thunderbolt™ 4 computer closed and tucked away, then wake it by touching your mouse or keyboard to get right back to work. And with 40 Gbps of bandwidth, Thunderbolt™ 4 always offers outstanding data and video performance.

Thunderbolt™ Docks for Creators

The ultimate creative, clutter-free workspace with a Thunderbolt™ dock

Thunderbolt™ offers a best-in-class set of product capabilities to deliver the simplest, most reliable, and fastest cable solution available for connecting to power and any of your favorite accessories. Create and enjoy a clutter-free desktop with color-accurate monitors, Thunderbolt™ docks, low-latency audio interfaces, and faster storage. Spend more time creating and less time working. Thunderbolt makes it easy to edit remarkably vivid photos and beautiful 4K videos with ease.

Unrivaled Simplicity

Simplify with Thunderbolt™

To simplify computer and accessory purchases, just look for the Thunderbolt™ logo.

Create Anywhere

Edit video on location and speed your ability to create on the go. Compact Thunderbolt™ computer-powered docks connect you to multiple monitors and more while in the field.

Reliable Connectivity

A Reliable Solution with Just One Connection

Thunderbolt™ docks give you a reliable connection. With one flippable, reversible cable, easily connect to a larger screen and fast storage, audio and video interfaces, cameras and lighting, and even pen tablets and stylus, all while charging your laptop.

One Reliable Solution Does It All

Thunderbolt™ ports, cables, and accessories are certified to help improve reliability and provide confidence your accessories and computer will work well together.

Maximum Performance

Maximize the Performance of Your Computer

Thunderbolt™ docks allow you to get the most out of your computer processor by offering the fastest bandwidth available to transfer your data and video files.

More Power, More Performance

Thunderbolt™ provides the most power to maximize the performance of your favorite accessories.

Thunderbolt™ 4

Enhance Your Creativity

Thunderbolt™ 4 docks connect up to three additional Thunderbolt devices directly, including one 8K or two 4K 60Hz monitors, while charging your computer. Great for your small office or home office.

Thunderbolt™ 5

The Ultimate Creative Expansion

Thunderbolt™ 5 enables you to connect more monitors at higher resolutions and faster refresh rates than ever before for uncompromised display experiences.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ Docks for Gamers

Turbocharge your gaming experience

Thunderbolt™ offers best-in-class capabilities to deliver the simplest, most reliable, and fastest cable solution available. Create an immersive gaming experience by reducing cable clutter with Thunderbolt docks, monitors, or external storage to quickly load games and store media libraries. Thunderbolt delivers the bandwidth needed to record, edit, and share gameplay videos or livestreams on YouTube or Twitch, or to connect with friends over Discord with ease.

Unrivaed Simplicity

Simplify with Thunderbolt™

To simplify computer and accessory purchases, just look for the Thunderbolt™ logo.

Game with Ease

Transform your everyday Thunderbolt™ computer into a lightning-fast gaming machine with a dock, monitor, and a fast, external storage device.

Eliminate Desk Clutter

Thunderbolt™ provides an easy-to-connect solution with a single cable for a clutter-free gaming experience.

Reliable Connectivity

Play Harder

Game harder without sacrificing peripheral connectivity options using a Thunderbolt™ dock with up to four Thunderbolt ports.

Mac, Windows, or Chrome, We've Got You Covered

Thunderbolt™ docks uniquely offer broad compatibility, supporting Mac, Windows, or Chrome-based computers.

Maximum Performance

Lightning-Fast Gaming

Turn your everyday Thunderbolt™ computer into a lightning-fast gaming machine with a Thunderbolt dock connected to a monitor and a fast, external storage device.

Record, Edit, Share

Thunderbolt™ provides the fast bandwidth needed to easily record, edit, and share gameplay videos, screenshots, and livestreams all through your Thunderbolt dock.

Thunderbolt™ 4

Simple and Flexible

Connect monitors and all of your gaming accessories at bandwidth speeds of 40 Gbps using up to four multi-purpose Thunderbolt™ 4 ports, so you can game directly from high-speed external storage over a Thunderbolt connection and save your computer's internal storage.

Thunderbolt™ 5

Expand your Gaming Experience

Effortlessly connect to everything you need at bandwidth speeds of 80 Gbps to 120 Gbps, so you can connect fast external storage. Game directly from an external Thunderbolt™ SSD, and save your computer's internal storage.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ Docks for SMB

Move fast with a single, uncomplicated cable

Give your business the ultimate advantage, whether you're at the office or working from home—Thunderbolt™ docks allow you to enjoy lightning-fast connections to high-speed external storage, charge your computer, connect to multiple monitors and a multitude of certified accessories simultaneously, all with a single, flippable, and reversible cable.

Unrivaled Simplicity

Move Effortlessly

Thunderbolt™ docks allow you to move effortlessly between workspaces and accessories without cable complexity slowing you down.

No IT Needed

With Thunderbolt™ just set it up once and forget it. You don't need an IT manager for a consistent user experience.

Reliable Connectivity

One Cable, the Ultimate Work Environment

Thunderbolt™ enables you to create a reliable, productive, and secure work environment with a dock and a single, flippable, and reversible cable that connects to your mouse, keyboard, webcam, and multiple monitors.

Mac or Windows, We've Got You Covered

Thunderbolt™ docks uniquely offer broad compatibility, supporting Mac, Windows, or Chrome-based computers.

Maximum Performance

Productivity, and Fast

Thunderbolt™ compact docks redefine the modern workspace by offering performance, laptop charging, and four Thunderbolt ports in a small footprint, whether you're working from home or at the office.

More Power for More Powerful Computing

Thunderbolt™ docks provide the power to fuel high-performance, feature-rich PCs.

Thunderbolt™ 4

Redefine the Modern Workspace

Thunderbolt™ 4 compact docks offer 40 Gbps performance, computer charging, and up to four Thunderbolt ports in a small footprint, whether you're in a small office or your home office.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ Docks for Enterprise (ITDM)

Accelerate business productivity with an efficient and versatile I/O solution

Thunderbolt™ docks offer a best-in-class set of product capabilities to deliver the simplest, most reliable, and fastest cable solution available for connecting to power and accessories. Create a productive and secure work environment for your employees with a single, flippable, and reversible cable that connects to a mouse, keyboard, webcam, and multiple monitors.

Unrivaled Simplicity

Mix and Match Across Manufacturers

Thunderbolt™ compatibility across manufacturers lets you reduce inventory costs with fewer SKUs to manage.

Simplify with Thunderbolt™

To simplify computer and accessory purchases, just look for the Thunderbolt™ logo.

Reduce Connection Complexity

A single Thunderbolt™ connection provides a productive, clutter-free, and secure docking solution for Thunderbolt and USB-C computers.

Reliable Connectivity

Working from Home Just Got a Lot Simpler

Keep your employees engaged and productive with a Thunderbolt™ dock. Connect multiple monitors, external storage, and more while charging your laptop with just one flippable, reversible cable.

One Reliable Solution

Thunderbolt™ ports, cables, and accessories are certified to help improve reliability and provide confidence your accessories and computer will work well together.

Remote Manageability for Worry-Free Docking

Select Thunderbolt™ docks offer wired Intel® AMT capabilities so IT can remotely connect to Intel vPro® PCs and manage or resolve issues remotely.

Maximum Performance

Workstation Performance on the Go

Thunderbolt™ docks give your employees the performance and power to be productive on the go or in the office.

Connectivity for an Evolving Workforce

Thunderbolt™ docks deliver the performance and capability headroom needed to keep pace with the evolving workforce.

Thunderbolt™ 4

Effortless Versatile Connectivity

Thunderbolt™ 4 compact docks enable you to effortlessly connect everything you need. 40 Gbps performance, laptop charging, and four Thunderbolt ports provide versatile connectivity in a small footprint for the home or office.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ Storage



Expand your local storage with a **lightning-fast connection** to a high-volume external storage device, for speed and capacity.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ Storage

Lightning-fast external storage

Expand your computer storage with a lightning-fast connection to a high-volume external storage device, for speed and capacity with Thunderbolt™.

Unrivaled Simplicity

Easy to Use

To simplify computer and accessory purchases, just look for the Thunderbolt™ logo.

Simplify External Storage Connections

More data than your local drive can store? No problem—easily add storage capacity to your Thunderbolt™ computer at speeds of internal storage.

Reliable Connectivity

One Reliable Solution

Thunderbolt™ storage is certified to improve reliable connectivity.

Maximum Performance

Work Direct from External Storage

Accelerate the speed of your creativity with Thunderbolt™ SSD storage—as fast as the internal SSDs inside your computer.

Speed Plus Capacity—the Best of Both Worlds

Expand your local storage with a lightning-fast Thunderbolt™ connection to a high-volume external storage device, for speed and capacity.

High-Speed External Storage Connection

Connect the fastest, highest-capacity computer-powered storage with Thunderbolt™.

Thunderbolt™ 5

Blazingly Fast Storage Performance

Experience SSD data transfer speeds of up to 6000 MBps to accelerate storage-intensive applications with Thunderbolt™ 5.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ Storage Market Segments

Consumers



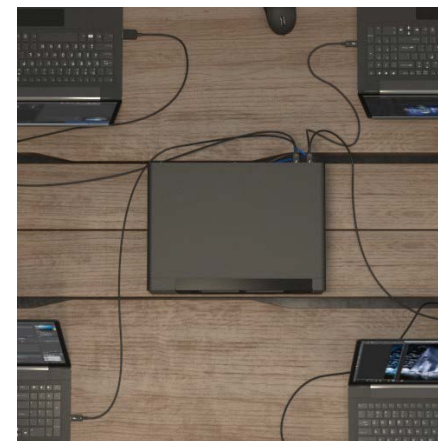
Creators



Gamers



SMB



Click on a market segment for context-specific messages.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ Storage for Consumers

All the space you need, and fast

Add more local storage with a lightning-fast connection to a high-volume external storage device for all your photographs, music, and movies.

Unrivaled Simplicity

Simplify with Thunderbolt™

To simplify computer and accessory purchases, just look for the Thunderbolt™ logo.

Simplify Adding Storage Capacity

Need more data than your local drive can store? No problem—easily add storage capacity to your Thunderbolt™ computer at speeds of internal drives.

Reliable Connectivity

One Reliable Solution

Thunderbolt™ storage devices are certified to improve the reliability of the data transfer connection between your computer and Thunderbolt storage.

Fast and Reliable Data Access

Thunderbolt™ desktop storage enables fast and reliable access to your data from a computer.

Maximum Performance

High-Speed External Storage Connection

Thunderbolt™ storage delivers the fastest, highest-capacity computer-powered storage for quick access to all your photographs and movies.

Lightning-Fast Transfer of Data

Thunderbolt™ portable storage is certified to ensure lightning-fast transfer of your data between the portable storage and the computer.

Thunderbolt™ 5

Blazingly Fast Storage Performance

Experience SSD data transfer speeds of up to 6000 MBps to accelerate storage-intensive applications with Thunderbolt™ 5.

Thunderbolt™ Storage for Creators

Work straight from your external storage

Accelerate the speed of your creativity with Thunderbolt™ SSD storage—as fast as the internal SSDs inside your computer.

Unrivaled Simplicity

Simplify with Thunderbolt™

To simplify computer and accessory purchases, just look for the Thunderbolt™ logo.

Content Library on Demand

Travel anywhere with your entire photo, video, and music collection on portable Thunderbolt™ SSD storage and have everything you need to produce, edit, and render your next rich-media creation.

Reliable Connectivity

Enhance Your On-the-Go Creative Experience

Download photos from your SD card or external storage over a reliable Thunderbolt™ connection.

Connectivity You Can Rely On

Testing and quality audits of Thunderbolt™ cables deliver dependable connectivity and provide peace of mind.

Industry-Leading Reliability

Thunderbolt™ requires mandatory certification to help ensure a consistent user experience across a wide range of product types and manufacturers.

Maximum Performance

Lightning-Fast External Storage

Accelerate the speed of your creativity with fast Thunderbolt™ SSD storage.

Render on the Run

Edit and render massive video and image files anywhere on portable Thunderbolt™ SSD storage at lightning-fast speeds.

Lightning-Fast Transfer of Data

Thunderbolt™ accelerates the speed of your creativity with blazingly fast connections to portable, desktop, or NAS storage, enabling you to move massive files, images, and video.

Thunderbolt™ 5

Blazingly Fast Storage Performance

Experience SSD data transfer speeds of up to 6000 MBps to accelerate storage-intensive applications with Thunderbolt™ 5.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ Storage for Gamers

Lightning-fast storage, unlocked

Don't stress about running out of space for your games on your local SSD—you can connect to an external Thunderbolt™ storage drive at lightning-fast speeds for fast level load times and a lag-free gaming experience.

Unrivalled Simplicity

Simplify with Thunderbolt™

To simplify computer and accessory purchases, just look for the Thunderbolt™ logo.

Sharing, Simplified

Record, edit, and share gameplay videos, screenshots, and livestreams on YouTube, Twitch, and Facebook with ease and at lightning-fast speeds with Thunderbolt™ storage.

Game Wherever You Go

Bring your entire game library with you and play games anywhere on fast, portable Thunderbolt™ SSD storage.

Reliable Connectivity

Game on the Go

Bring your entire game library with you and play games anywhere with a reliable connection to Thunderbolt™ SSD storage.

Industry-Leading Reliability

Thunderbolt™ requires mandatory certification to help ensure a consistent user experience across a wide range of product types and manufacturers.

Connectivity You Can Rely On

Testing and quality audits of Thunderbolt™ cables deliver dependable connectivity and provide peace of mind.

Maximum Performance

High-Octane Gaming from External Storage

Thunderbolt™ storage creates immersive gaming experiences by adding more storage capacity at lightning-fast speeds to quickly load games and store media libraries.

More Capacity, More Victories

Thunderbolt™ lets you connect to external, higher-capacity storage drives, giving you more room to store not only old favorites, but also new titles.

Play Games on Big Screens

Convert your computer into a gaming station with multiple ports to connect peripherals, giving you more capacity and fast data transfer speeds with Thunderbolt™ storage.

Thunderbolt™ 5

Blazingly Fast Storage Performance

Experience SSD data transfer speeds of up to 6000 MBps to accelerate storage-intensive applications with Thunderbolt™ 5.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ Storage for SMB

Expanded storage, fast

Don't let local storage space limitations hold you back—you can now work directly from your high-speed external storage and transfer files at lightning speeds. Thunderbolt™ makes it happen.

Unrivaed Simplicity

Simplify with Thunderbolt™

To simplify computer and accessory purchases, just look for the Thunderbolt™ logo.

Expand High-Speed Storage Capacity

More data than you can fit on your local drive? No problem! Easily add storage capacity and fast data access with Thunderbolt™ external SSD storage.

Reliable Connectivity

Industry-Leading Reliability

Thunderbolt™ requires mandatory certification to help ensure a consistent user experience across a wide range of product types and manufacturers.

Connectivity You Can Rely On

Testing and quality audits of Thunderbolt™ cables deliver dependable connectivity and provide peace of mind.

Maximum Performance

Lightning-Fast File Transfers

To support data intensive applications, Thunderbolt™ can move massive files, images, and video quickly, accelerating data access and archiving on external storage.

Endless Possibilities

Thunderbolt™ offers exciting potential for those working with multi-stream HD and 4K video. Single-cable docks with charging, external graphics, and built-in networking open up fresh possibilities for everything you do.

Portable Storage

Add Storage Capacity

More data than you can fit on your local drive? No problem! Easily add storage capacity and fast data access with Thunderbolt™ external SSD storage.

Desktop Storage

Reliably Transfer Large Files

Move massive files, images, and video fast to accelerate data access and archiving of large files on your external Thunderbolt™ desktop storage.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ Desktops for Gamers and Creators

Elevate performance and convenience

Harness the power of Thunderbolt™ ports on your desktop for ultimate performance gains. Game or create directly from an external SSD, mirroring an internal NVMe drive's speed. As a gamer, you can seamlessly record, stream, and broadcast high-quality content. As a creator, you can effortlessly share your workspace with a laptop user through a single cable switch.

Unrivaled Simplicity

Expanded Storage Capacity, Fast

Thunderbolt™ ports provide 40 Gbps, empowering you to move large files blazingly fast on an external SSD such as an internal NVMe drive, so you can enjoy both speed and capacity for data intensive usages like gaming and creation.

High Quality AV Capture

The high bandwidth that Thunderbolt™ delivers allows for game recording and streaming at a massive 240 FPS in full HD, or online broadcasting in an amazing 4K resolution at 60 FPS. Thunderbolt™ also ensures low latency and highly accurate time synchronization for multichannel, multi-DSP effect audio. Immerse your audience in exceptional AV content with unmatched quality.

Reliable Connectivity

It Just Works

Robust Thunderbolt™ end-to-end testing and certification offers peace of mind and helps ensure your computer and accessories work great together regardless of the manufacturers.

Broad OS Support

Thunderbolt™ connections offer broad compatibility, supporting Windows, MacOS, and Linux on desktop computers.

Maximum Performance

Grab and Go

With a Thunderbolt™ port, you can directly game or create on an external Thunderbolt SSD that runs as fast as an internal NVMe drive. You can simply save the progress anytime and grab it on the go.

Shared Workspace

A Thunderbolt™ dock provides you a one-cable solution that pre-connects multiple monitors and all other accessories. With a simple cable switch, you're ready to share your entire workspace with a laptop user.

Front Panel Convenience

Front panel Thunderbolt™ ports on a tower PC offer you an easy way to reach, connect, and switch accessories with a single, flippable, reversible cable.

Connect Five Devices with a Single Port

A single port can connect up to five Thunderbolt™ devices through a Thunderbolt 4 multi-port accessory or by connecting multiple devices in series.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ Desktops for Enterprise

Enhance productivity for power users

Enable an efficient workspace with desktops featuring Thunderbolt™ ports, offering your power users a seamless, high-speed connection that simplifies file sharing and facilitates effortless workspace sharing.

Unrivaled Simplicity

Fast External Storage

Thunderbolt™ provides 40 Gbps bandwidth. Your data-intensive pro users will be greatly empowered by an external Thunderbolt™ SSD that gives them extended storage capacity and the speed of an internal NVMe drive when moving massive files.

High Speed Networking

Using Thunderbolt™ P2P networking, your power users can move massive amounts of data quickly and easily between workstations.

Reliable Connectivity

It Just Works

Robust Thunderbolt™ end-to-end testing and certification offers peace of mind and helps ensure your computer and accessories work great together regardless of the manufacturers.

Broad OS Support

Thunderbolt™ connections offer broad compatibility, supporting Windows, MacOS, and Linux on desktop computers.

More Secure

Thunderbolt™ 4 computer ports are required to support Intel® VT-d-based DMA protection solutions that help prevent unauthorized access to system memory by peripheral devices.

Maximum Performance

Front Panel Convenience

Front panel Thunderbolt™ ports on a tower PC offer your power users an easy way to reach, connect, and switch accessories with a single, flippable, reversible cable.

A Clean and Productive Workspace

Paired with a Thunderbolt™ monitor featuring a built-in dock to connect accessories, your professional creators and designers can easily get immersed in their work, clutter-free.

Flexible Workspace

A Thunderbolt™ dock provides you a one-cable solution that pre-connects multiple monitors and all other accessories. With a simple cable switch, the workspace can be easily shared with a laptop user.

Thunderbolt™ 4 Monitors

Upgrade your visual experience with integrated docking

Experience vivid visuals, smooth 4K video, and a second 4K display when you connect to a Thunderbolt™ high-definition monitor with a built-in dock. Connect all your accessories through the integrated dock for a high-performance and clutter-free workspace!

Unrivaed Simplicity

Clean Desk

A Thunderbolt™ 4 monitor with integrated docking provides the easiest way to connect to all the accessories you need for work or play. It's a smart solution for providing system charging, display, and data connection all over a single, flippable, reversible cable, while keeping your desk neat and clean.

Second Screen, Easy

Need to double your 4K screen real estate to boost productivity? Simply connect the second screen directly from the initial monitor's Thunderbolt™ 4 port. It's just that simple!

Reliable Connectivity

It Just Works

Thunderbolt™ 4 monitors must complete a robust end-to-end testing and certification program that helps ensure they work with different brands of computers and accessories regardless of the manufacturers.

Broad OS Support

Thunderbolt™ 4 monitors offer broad compatibility, supporting Mac, Windows, and Chrome-based computers.

Outstanding Performance

Great Visuals for Media Creation

Get immersed in your media creation on a Thunderbolt™ 4 monitor that provides top-end visual clarity with added features such as HDR10, full Adobe RGB, built-in color calibration, and more. With a built-in Thunderbolt dock, you have ample data bandwidth to edit images, move big files, surf online, or listen to music, while charging your laptop and other companion devices at the same time.

Low-Latency Gaming

Immerse yourself in your battlefield. Any action or movement you make delivers a spontaneous effect on your high-resolution and high-refresh-rate Thunderbolt™ 4 gaming monitor. With an integrated Thunderbolt™ dock, you have ample data bandwidth to record, stream your gameplay, chat with your friends, or listen to music.

Creator Monitor

Vivid Visuals

Thunderbolt™ 4 is 40 Gbps, providing the high bandwidth demanded by high resolution, high-color bit depth, and RGB features that matter the most to creators. With the built-in Thunderbolt dock, you can connect your PC to two 4K/60Hz/10-bit monitors.

Gaming Monitor

Low Latency

Thunderbolt™ 4 is 40 Gbps, providing the high bandwidth demanded by high-resolution, high-refresh-rate gaming monitors so gamers can enjoy low-latency gaming. With the built-in Thunderbolt dock, you can connect your gaming PC to one 2K/240Hz or two FHD/240Hz monitor(s).

Thunderbolt™ 5 Monitors

Best display experience with integrated docking

Experience vivid visuals and smooth video over three monitors when you connect to a Thunderbolt™ high-definition monitor with a built-in dock. Connect all your accessories through the integrated dock for a high-performance and clutter-free workspace!

Maximum Performance

Great Visuals for Media Creation

Get immersed in your media creation with a Thunderbolt™ 5 monitor that provides top-end visual clarity with added features like HDR10, full Adobe RGB, built-in color calibration, and more. With a built-in Thunderbolt dock, you have ample data bandwidth to draw, move big files, surf online, or listen to music, while charging your laptop and other companion devices at the same time.

Low-Latency Gaming

Immerse yourself in your battlefield. Any action or movement you make delivers a spontaneous effect on your high-resolution and high-refresh-rate Thunderbolt™ 5 gaming monitor. With an integrated Thunderbolt dock, you have ample data bandwidth to record, stream your gameplay, chat with your friends, or listen to music.

Unrivaled Simplicity

Clean Desk

A Thunderbolt™ 5 monitor with integrated docking provides the easiest way to connect to all the accessories you need for work or play. It's a smart solution for providing system charging, display, and data connection all over a single, flippable, and reversible cable, while keeping your desk neat and clean.

Unparalleled Display Experiences

Need to triple your screen real estate for the best display experiences? Now you can connect three monitors with Thunderbolt™ 5.

Reliable Connectivity

It Just Works

Thunderbolt™ 5 monitors must complete a robust end-to-end testing and certification program that helps ensure they work with different brands of computers and accessories regardless of the manufacturers.

Broad OS Support

Thunderbolt™ 5 monitors offer broad compatibility, supporting Mac, Windows, and Chrome-based computers.

Creator Monitor

Vivid Visual

Thunderbolt™ 5 can transmit data at up to 120 Gbps, providing the highest bandwidth demanded by high resolution, high color bit depth, and RGB features that matter the most to creators. With the built-in Thunderbolt dock, you can connect your PC to up to three 6K/60Hz monitors or three 8K/60Hz monitors with DSC.

Gaming Monitor

Low Latency

With up to 120 Gbps, Thunderbolt™ 5 delivers the high bandwidth demanded by high-resolution, high-refresh-rate gaming monitors so gamers can enjoy low-latency gaming. With the built-in Thunderbolt dock, you can connect your gaming PC to three 2K/240Hz uncompressed monitors or three 2K/480Hz monitors with DSC.

Thunderbolt™ eGFX Solutions

Boost your laptop capability with additional graphics horsepower

A Thunderbolt™ eGFX device provides your laptop additional graphics performance for 3D gaming, professional apps, and more.

Unrivaled Simplicity

Mobility and Performance Flexibility

Elevate your laptop's performance for 3D gaming or professional design, or expand your connection to more monitors. A Thunderbolt™ eGFX device is a perfect external solution that enables you to enjoy boosted capabilities for graphics-intensive workloads, while keeping the benefits of taking your thin laptop on the go. Enjoy the best of both worlds, easy!

Reliable Connectivity

It Just Works

Each Thunderbolt™ eGFX device must complete a robust end-to-end testing and certification program that helps ensure it works with different brands of laptops and other accessories regardless of the manufacturers.

Broad OS Support

Thunderbolt™ eGFX devices offer broad compatibility, supporting Windows and Mac computers.

Maximum Performance

Boost Your Gaming Experience

Turn your laptop into a muscular gaming machine! With a Thunderbolt™ eGFX device, you can now attach a high-performance graphics card of your choice for a high-resolution, multi-monitor gaming experience.

Run Professional Apps

Gain desktop-level performance for graphics-intensive workloads such as animation, color grading, and rendering CAD and simulation apps with a Thunderbolt™ eGFX device.

Thunderbolt™ 5

Amazing Graphics Performance

Thunderbolt™ 5 delivers 2x the throughput to external GPUs to deliver amazing graphics performance.

Learn more performance details [here](#). Results may vary.

Thunderbolt™ AV Capture Accessory

Capture your lifelike shows

A Thunderbolt™ AV capture accessory enables you to record your gameplay or broadcast with unrivaled quality and smoothness.

Unrivaled Simplicity

One Cable Connection

Thunderbolt™ provides a simple connection. With one flippable and reversible cable, you can easily connect your AV capture accessory directly to your PC or connect through a dock at full speed, while also connecting all other peripheral devices needed for recording and streaming.

Reliable Connectivity

It Just Works

Thunderbolt™ AV capture products undergo a robust end-to-end testing and certification program, which helps ensure they work great with different brands of computers and other accessories regardless of the manufacturers.

Maximum Performance

Capture Your Peak Moment in Full

Victory or defeat is determined in a fraction of a second. With Thunderbolt™ you can record precious frames for your highlight reel while immersed in the game.

Elevate the Quality of Your Show

With Thunderbolt™ you can stream your show at high resolution and high FPS, sharing an exceptional experience with your online followers.

Amazing Sound Quality

Thunderbolt™ ensures low latency and highly accurate time synchronization for premium quality of multichannel, multi-DSP effect audio capture and playback.

Thunderbolt™ 4

Thunderbolt™ 4 delivers 40 Gbps of bandwidth, allowing you the ability to capture gameplay at up to a massive 240 FPS in full HD.

Thunderbolt™ 5

Thunderbolt™ 5 delivers up to 80 Gbps of bi-directional bandwidth, enabling you to capture true 4K/60Hz HDR content while still having bandwidth headroom for the fastest monitors.

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