



WD Hard Drive

Interface Guide

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Not sure which drive is right for your computer? This guide helps you determine the right type of drive and interface using these three questions:

- Which internal drive is the right choice: SATA or PATA?
- Which internal drive is compatible with my operating system: SATA or PATA?
- Which external drive interface is the right choice: USB, FireWire®, eSATA, or Gigabit Ethernet?

Which internal drive is the right choice: SATA or PATA?

First, look at the connections on your computer's motherboard.



SATA

Serial ATA (SATA) hard drives are quickly becoming the new standard in hard drive technology. Motherboard manufacturers now include SATA inputs on their boards. Because of their considerably narrower cables, SATA hard drives provide increased airflow and less clutter in the computer system compared to PATA drives. Some older computer system motherboards don't have SATA ports, but a PCI SATA controller card can be installed to add support for SATA drives. If you don't know whether your computer has SATA ports on the motherboard, refer to your computer or motherboard documentation or contact the motherboard manufacturer.

PATA

Parallel Advanced Technology Attachment (PATA or Parallel ATA) hard drives have been the standard in the computer industry for more than 10 years. Some newer computer system motherboards don't have PATA ports, but a PCI PATA controller card can be installed to add support for PATA drives. If you don't know whether your computer has PATA ports on the motherboard, refer to your computer or motherboard documentation or contact the motherboard manufacturer.

Feature	WD SATA Hard Drives	WD PATA Hard Drives
Maximum data transfer rate	150 MB/s or 300 MB/s	100 MB/s
Devices per cable	One	Two
Jumper block	8-pin (no Master/Slave settings)	10-pin (single, Master, Slave, and cable select (CSEL) settings)

Which internal drive is compatible with my operating system: SATA or PATA?

Your operating system, as well as your hardware, must support the hard drive you choose:

Operating System	WD SATA Hard Drive Compatibility	WD PATA Hard Drive Compatibility
Windows® Vista™	Yes	Yes
Windows 2000 or XP	Yes	Yes
Windows 98SE or Me	No	Yes
Mac® OS X	Yes	Yes
Mac OS 9.x	Yes	Yes

Compatibility may vary depending on the user's hardware configuration and operating system.

Other helpful information is available in the WD Knowledge Base at support.wdc.com:

- What issues should I be concerned about when using a drive larger than 137 GB? (Answer ID 533)
- Are PATA hard drives larger than 137 GB supported in Mac systems? (Answer ID 927)

Which external drive interface is the right choice: USB, FireWire, eSATA, or Gigabit Ethernet?

Each interface has its strengths, which are explained in detail below. The right choice depends on compatibility with your computer and how you want to use your device. First, look at the connections on your computer.

USB

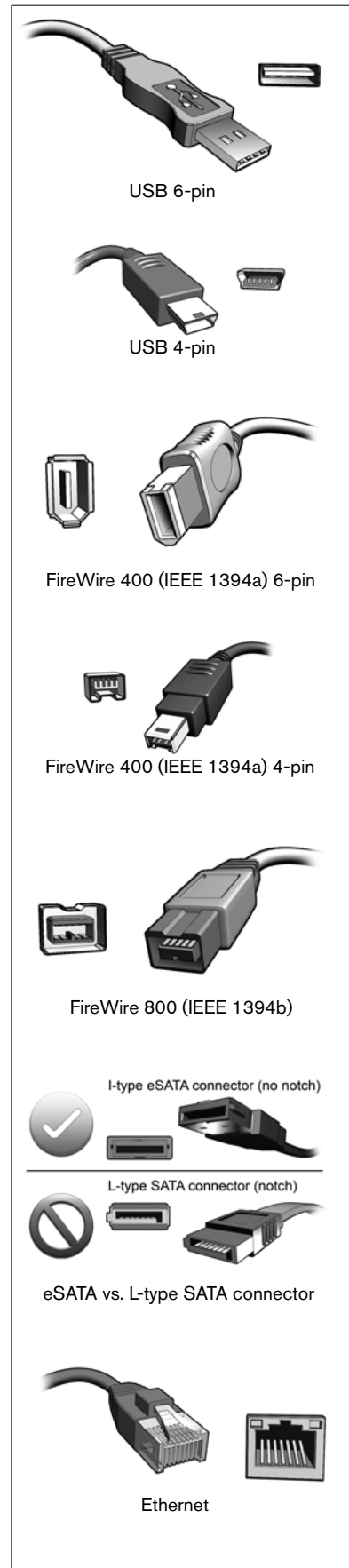
USB 2.0 is the industry standard peripheral connection for most Windows-based computers. USB connector types include 6-pin (desktops) and 4-pin or mini (laptops and camcorders, etc.). Cables and adapters are available to connect mini or standard host USB ports to 4-pin or 6-pin connectors.

USB transfers data at a maximum rate of 480 Mb/s. Sustained data transfer rates, usually from 10 to 30 MB/s, vary depending on many factors including the type of device, data being transferred, and computer system speed. If your USB port is an earlier version, USB 1.0 or 1.1, you can use a USB 2.0 hard drive, but transfer rates default to the slowest version. If you don't know the version of your computer's USB ports, refer to your computer documentation or contact the manufacturer.

FireWire

FireWire, also called IEEE 1394, is a high-performance connection standard for personal computers and consumer electronics. This interface uses a daisychained interconnect architecture to allow multiple storage devices to share a single host system FireWire port. The interface functions as peer to peer – allowing devices to communicate and transfer data with greatly-reduced host system overhead and higher efficiency compared to alternative interfaces like USB. FireWire has two configurations:

- *FireWire 400*, also called IEEE 1394a, transfers large amounts of data between computers and peripheral devices at rates up to 400 Mb/s. It is the most common FireWire interface, present in 6-pin (desktops) and 4-pin (laptops and camcorders, etc.) variants. Cables and adapters are available to connect mini or standard host FireWire 400 ports to 4-pin or 6-pin connectors. The host provides power through the 6-pin interface to downstream connected devices where required. Most desktop external storage units are self-powered (wall power supply) and do not require power from the host interface. FireWire 400 is commonly used to connect digital cameras, camcorders and popular external storage, and has the bandwidth to perform common DV resolution video editing in most cases.
- *FireWire 800*, also called IEEE 1394b, provides the high-speed connection and bandwidth required for multiple-stream, uncompressed digital video and noise-free, high-resolution digital audio. FireWire 800 is typically twice as fast as FireWire 400 and is necessary for HD video editing and other applications where the fastest data transfers and expandability by daisychaining are needed. Cables and adapters are available to connect FireWire 800 or 400 host ports to FireWire 800 or 400 connectors.



eSATA

SATA is very effective for external storage applications, and the external SATA (eSATA) cable and connector application (detailed in the SATA 2.5 specification) provides a physically secure and fast connection for external hard drives. With up to 3 Gb/s data transfers, this interface provides a high data transfer rate suitable for hard drives, home networking, digital video, and home entertainment devices such as set-top boxes and personal video recorders. Some systems can be configured to boot off an external eSATA drive.

eSATA and internal SATA cables and connectors cannot be used interchangeably. This is important since eSATA cables and connectors are designed for 5000 insertion and removal cycles while SATA cables and connectors are designed for only 50 insertion and removal cycles.

Note: SATA cables with an L-shaped connector are incompatible with WD eSATA devices.

Gigabit Ethernet

Ethernet is a standard method of connecting computers to a local area network (LAN) using twinlead cable. As an external hard drive interface, it is most often used for network attached storage (NAS) applications in which files can be shared across a network or accessed remotely.

Gigabit Ethernet, with its data transfer rate of 1000 Mb/s, is the latest and fastest Ethernet standard that evolved from the earlier Fast Ethernet (100 Mb/s) and Ethernet (10 Mb/s) standards. Benefits of Gigabit Ethernet include increased bandwidth, quality of service (QoS) features that promote smooth transmission of audio and video, and compatibility with existing Ethernet and Fast Ethernet networks.

Summary

USB 2.0	FireWire 400	FireWire 800	eSATA	Gigabit Ethernet
Hot-swappable (attach a device without rebooting the system)	Hot-swappable (attach a device without rebooting the system)	Hot-swappable (attach a device without rebooting the system)	Fast and physically secure connection for external hard drives	Can attach a device to a system's network adapter, router, switch, or hub port
480 Mb/s maximum burst transfer rate	400 Mb/s maximum sustained transfer rate	800 Mb/s maximum sustained transfer rate; twice as fast as FireWire 400	Up to 3 Gb/s maximum sustained transfer rate. Near-equivalent to internal drive performance.	1000 Mb/s maximum sustained transfer rate; ten times as fast as Fast Ethernet
Best for connecting to different systems quickly and easily	Best for fast transfer of large amounts of data frequently or for audio/video applications like home video editing	Best for multiple-stream digital video and high-resolution digital audio and video applications	Best for transferring large amounts of data frequently or for audio/video programs	Best for sharing large amounts of data and/or large audio/video files across a network. Also best for remote file access.
More popular for PCs	More popular for Macintosh® computers	More popular for Macintosh computers	More popular for PCs	More popular for PCs

Note: For convenience and flexibility, choose a WD hard drive with both USB and FireWire interfaces (available in dual and triple interface configurations) or with both USB and eSATA interfaces.

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