Western Digital®

WD Hard Drive

Interface Guide

WD Hard Drive Interface Guide

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

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

First, look at the connections on your computer.

SATA   EIDE

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 and in the computer system compared to EIDE 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.

EIDE

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

Feature	WD SATA Hard Drives	WD EIDE 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 EIDE?

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

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

Compatibility may vary depending on 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 EIDE 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. This connection 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 peer-to-peer architecture in which peripherals negotiate bus conflicts to determine which device can best control a data transfer. FireWire has two configurations:
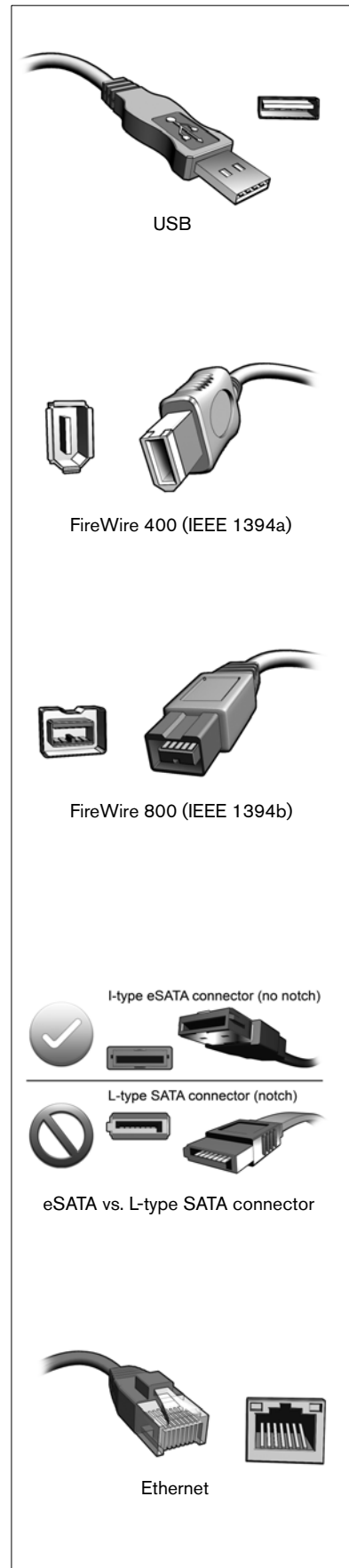
- FireWire 400, also called IEEE 1394a, transfers large amounts of data between computers and peripheral devices at rates up to 400 Mb/s. With higher bandwidth, longer distances, and a higher-powered bus, this interface is suitable for hard drives, digital video, professional audio, high-end digital still cameras, and home entertainment devices.
- 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. It offers maximum flexibility with long-distance cabling and configuration options not available with USB.

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 is suitable for hard drives, home networking, digital video, and home entertainment devices such as set-top boxes and personal video recorders.

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. To achieve eSATA connectivity with an external SATA drive, a SATA PCI card must be installed on the host computer.

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

USB

FireWire 400 (IEEE 1394a)

FireWire 800 (IEEE 1394b)

I-type eSATA connector (no notch)

L-type SATA connector (notch)

eSATA vs. L-type SATA connector

Ethernet

Gigabit Ethernet

Ethernet is a standard method of connecting computers to a local area network (LAN) using coaxial 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.

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.

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)	Hot-swappable (attach a device without rebooting the system)	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 3000 Mb/s maximum sustained transfer rate	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 transferring large amounts of data frequently or for audio/ video programs	Best for multiple-stream digital video and high-resolution digital audio	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
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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