

## Ports

### Computer PS/2 ports



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1. When referring to a physical device, a **hardware port** or **peripheral port** is a hole or connection found on the front or back of a computer. Ports allow computers to access external devices such as printers. Below is a short listing of the different computer ports you may find on a computer. The picture shows an example of a type of port on the back of a computer.

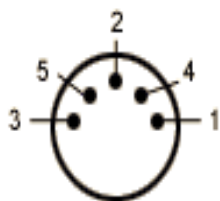
### Computer port examples

- AT port (old keyboard port)
- Firewire port (IEEE-1394)
- Joystick port
- LAN or network port (RJ-45)
- LPT port (printer port)
- Modem or phone port (RJ-11)
- PS/2 port (keyboard port and mouse port)
- Serial port (DB9)
- USB port

**Tip:** You can add more ports to a computer by installing an expansion card into the computer. For example, if your desktop computer did not have a FireWire port you can add an expansion card with a FireWire port.

### AT keyboard

#### AT / Din5 Port



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Alternatively referred to as the **Model F keyboard**, the **AT keyboard** is a US standard keyboard introduced in 1986 by IBM. The original version had 84-keys but was then replaced by the 101-key enhanced keyboard. Unlike new keyboards, the AT keyboard does not include the additional

three [Microsoft Windows keys](#) now found on many IBM compatible keyboards.

An AT keyboard may also be used to describe a keyboard that uses the AT (Din5) port as shown in the above illustration. The Din5 Port is rarely used today since most computers use either PS/2 or USB keyboards.

## FireWire

FireWire connection



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Alternatively referred to as **IEEE-1394**, **FireWire** is a digital [bus](#) with a [bandwidth](#) of 400-800 [Mbps](#). It can handle up to 63 units on the same bus, and is [hot swappable](#). It was first developed by [Apple](#) in [1995](#).

Users more familiar with USB can consider FireWire similar to USB, as they has many similarities. Like USB, FireWire has dozens of different devices such as removable drives and cameras.

**Tip:** Ports labeled as **i.Link** are [Sony's](#) implementation of IEEE-1394.

## Game control adapter

Back of Sound Card



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Originally known as the **Analog-to-Digital port (A-to-D port)**, the as a **game port**, **joystick port**, or **game control adapter** is a 15-pin connector [port](#) first found on [IBM](#) computers in [1981](#). The game port is handled by the [SIO](#) and allows users to connect such devices as joysticks, game pads, steering wheels and other devices that allow additional functionality to the computer.

In the picture is an example of the back of a computer sound card. In this picture, the joystick port is the 15-pin yellow connection at the bottom of the card.

There were some motherboards that included a joystick port built-in and for those that did not an internal ISA or PCI card, with a joystick port on it could be installed in the computer.

Today, this port has been largely replaced by game devices that connect using USB and the 15-pin connector is no longer used.

## RJ-45

RJ-45 connector



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Short for **Registered Jack-45**, a **RJ-45** is an 8-pin connection used for Ethernet network adapters. This connector resembles the RJ-11 or 6-pin connector used with telephones in the United States, but they're completely different. The picture is of a RJ-45 connector separated from the cable.

This connector is most commonly connected to the end of Cat5 cable, which is connected between a computer network card and a network device such as a network router.

## LPT

Short for **Line Printer Terminal**, **LPT** is used by IBM compatible computers as an identification for the parallel port such as LPT1, LPT2, or LPT3. This is commonly required when installing a printer on an IBM compatible computer. The majorities of all computers utilize LPT1 and do not have an option for another LPT port unless additional ports are added to the computer.

## Parallel Port (DB25)



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## RJ-11 cable and connection



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## RJ-11

More commonly known as a **modem port**, **phone connector**, **phone jack** or **phone line**, the **Registered Jack-11 (RJ-11)** is a four or six wire connection for [telephone](#) and [Modem](#) connectors in the US. The picture is an example image of what the RJ-11 phone cable and connection.

**Note:** Although this cable can be used to connect your modem to the Internet it should not be confused with the [RJ-45](#) connector, which is used with your [network card](#).

## PS/2

### Computer PS/2 ports



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1. Often referred to as the **mouse port** or **keyboard port**, the **PS/2 port** was developed by [IBM](#) and is used to connect a computer [mouse](#) or [keyboard](#) to an IBM compatible computer. The PS/2 port is a mini [DIN](#) plug that contains six pins and is still found on all IBM compatible computers today, however, is starting to be replaced by [USB](#).

The picture to shows what the PS/2 ports may look like on the back of your computer. As can be seen by both of these pictures many computers have adopted the color codes purple and teal as identifications for each of the port. The mouse is teal and the keyboard is purple.

Below, the left picture is an example of the PS/2 plug and the right illustration is of the actual PS/2 connection with its pin layouts.

## PS/2 Mouse Cable



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6 pin PS/2 specifications

Pin	Voltage	Assignment
1	+2.0 to +5.5v	Keyboard Data
2	+4.8 to +5.5v	Reserved
3	Ground	Ground
4	+2.0 to +5.5v	+5.0V DC
5	+2.0 to +5.5v	Keyboard Clock
6	+2.0 to +5.5v	Reserved

2. **PS/2** was an IBM computer that was first introduced in 1987 that had improved graphics, a 3.5-inch diskette drive, a proprietary bus to help prevent clone makers competition, and a bidirectional 8-bit port.
3. **PS2** is short for **PlayStation 2**, a gaming console system developed by Sony.

## Serial port

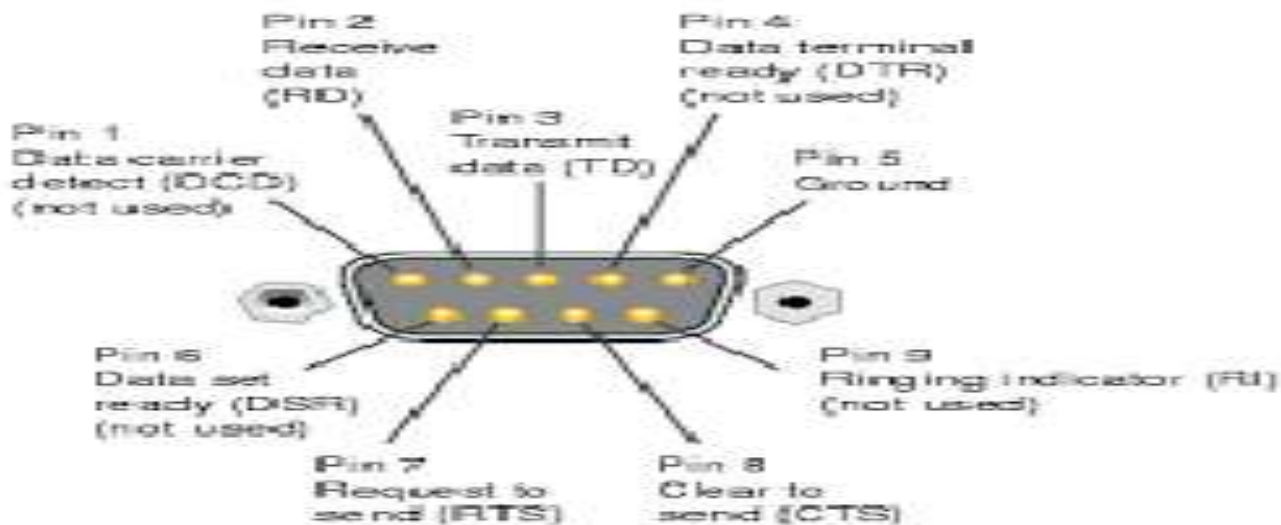


An asynchronous port on the computer used to connect a serial device to the computer and capable of transmitting one bit at a time. **Serial ports** are typically identified on IBM compatible computers as COM (communications) ports. For example, a mouse might be connected to COM1 and a modem to COM2. With the introduction of USB, FireWire, and other faster solutions serial ports are rarely used when compared to how often they've been used in the past. The picture shows the **DB9** serial port on the back of a computer.

Identifying

In the above graphic of a serial port you can notice the DB9 serial port connection is easy to identify. The connection is in the shape of the letter D, is a male connector, and has 9 pins.

Pin information



Below is a listing of each of the pins located on the DB9 connector, their purpose, and signal name. As can be seen in the above picture pin one is in the top left and pin 9 is in the bottom right.

PIN	PURPOSE	SIGNAL NAME
1	Data Carrier Detect	DCD
2	Received Data	RxData
3	Transmitted Data	TxData
4	Data Terminal Ready	DTR
5	Signal Ground	Gnd
6	Data Set Ready	DSR
7	Request To Send	RTS
8	Clear To Send	CTS
9	Ring Indicator	RI

## What is the serial port used for?

Below is a listing of various hardware components that can be purchased and used with your serial port.

**Mouse** - One of the most commonly used devices for serial ports, usually used with computers with no PS/2 or USB ports and specialty mice.

**Modem** - Another commonly used device for serial ports. Used commonly with older computers, however, is also commonly used for its ease of use.

**Network** - One of the original uses of the serial port, which allowed two computers to connect together and allow large files to be transferred between the two.

**Printer** - Today, this not a commonly used device for serial ports. However, was frequently used with older printers and plotters.

## USB

### USB cable and port



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Short for **Universal Serial Bus**, **USB** (pronounced yoo-es-bee) is a standard that was introduced in 1995 by Intel, Compaq, Microsoft and other computer companies. USB 1.x is an external bus standard that supports data transfer rates of 12Mbps and is capable of supporting up to 127 peripheral devices. The picture shows an example of a USB cable being connected into the USB port.

### USB transfer speeds

**USB 2.0**, also known as **hi-speed USB**, was developed by Compaq, Hewlett Packard, Intel, Lucent, Microsoft, NEC and Philips and was introduced

in 2001. Hi-speed USB is capable of supporting a transfer rate of up to 480 Mbps and is backwards compatible, meaning it is capable of supporting USB 1.0 and 1.1 devices and cables.

**USB 3.0** devices were first made available in November 2009 by Buffalo Technology, but the first certified devices weren't available until January 2010. The first certified devices included motherboards from ASUS and Gigabyte Technology. Dell began including USB 3.0 ports in their

Inspiron and Dell XPS series of computers in April 2011. Today, many devices use the USB 3.0 revision for improved performance and speed, including USB [thumb drives](#), digital cameras, external hard drives, MP3 players, and other devices.

As of 2012, USB 3.0 also known as **SuperSpeed USB** is the latest version of the USB protocol. Most new computers feature USB 3.0 ports built-in, offering data transfer speeds of up to five gigabits per second. USB 3.0 improved upon the USB 2.0 technology with speed and performance increases, improved power management and increased bandwidth capability (providing two unidirectional data paths for receiving and sending data at the same time).

### [USB connector variations](#)

USB connectors come in many shapes and sizes as there are many different devices that utilize them. Every version of USB connector including standard, Mini, and Micro have two or more variations of connectors.

### [USB devices](#)

Today, there are millions of different USB devices that can be connected to your computer. Below are just a few of the most common USB devices you'll likely find and use.

- [Camera](#)
- [External drive](#)
- [iPod](#) or other [MP3](#) player
- [Keyboard](#)
- [Keypad](#)
- [Microphone](#)
- [Mouse](#)
- [Printer](#)
- [Joystick](#)
- [Jump drive aka Thumb drive](#)
- [Scanner](#)
- [Smartphone](#)
- [Tablet](#)
- [Webcams](#)