

INPUT /OUTPUT PORTS AND CONNECTORS



UNIVERSAL SERIAL BUS

- Data width : 1 bit
- Data transfer rate : 1.5 Mbps low speed for USB 1.1 or 2.0; 12 Mbps full speed for USB 1.1 or 2.0; 480 Mbps hi speed for USB 2.0
- Typical use : printer, scanner, modem, mouse, keyboard, portable flash memory, portable media player, external floppy or hard or optical disk, digital still or video camera, PDA
- up to 127 devices per host port using hubs ; supplies 5 volts at 100 to 500 milliamperes for use by each device ; 4 wires in a shielded cable up to 5 meters (16.4 feet) long ; devices cannot send data until they are polled by the host ; hotpluggable (that is, cable plugs can be inserted into or removed from receptacles while power is on)



Type A receptacle on a computer host or a hub



Type A plug (above) to a host or hub, and a Type B plug (below) to a device on the ends of a typical full - size - connector cable



Mini - A plug (left, white) to a computer, and a Mini - B plug (right, black) to a device on the ends of a typical mini - connector cable

SERIAL RS-232-C

- This is a standard for serial binary communication by the Electronic Industries Alliance [EIA], where “RS” is an abbreviation for “RETMA Standard” promulgated in 1969 by RETMA, which was a precursor of the EIA
- **Data width** : 1 bit
- **Data transfer rate** : typically 75 to 128,000 bps, although the RS-232-C standard does not define bit rates for transmission nor protocols for character encoding, error detection, or data compression
- **Typical use** : modem, printer, mouse, keyboard
- Bidirectional using one transmit wire and one receive wire; asynchronous



Male 9-pin D-shell RS232C serial connector on a PC

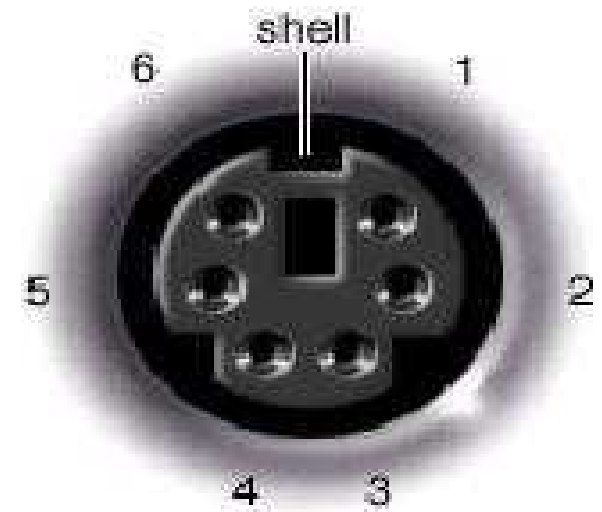


A male 25-pin D - shell plug (left) and a female 9-pin D - shell connector (right) on a cable for RS232C serial communication between a PC and a device

PORTS : PS/2

- Data width : 1 bit
- Data transfer rate : about 7000 to about 12,000 bps
- Typical use : mouse, keyboard
- synchronous data transmission from device to PC with a 10 – 16.7 kHz clock; supplies the device with power of 5 volts at up to 275 mA

PS/2 mouse or keyboard connector on a PC, typically with an icon for a mouse (cyan) or for a keyboard (magenta)



SERIAL(COM)PORT AND PARALLEL PORT(LPT) IEEE 1284

- “IEEE” is an abbreviation for the “Institute of Electrical and Electronic Engineers .
- **Data width** : 8 bits
- **Data transfer rate** : 360,360 Bps for Centronics or standard mode; about 2 MBps for EPP mode ; about 2.5 MBps for ECP mode
- **Typical use** : printer, scanner, magnetic tape
- Centronics or standard mode has 8 bits out of and 4 bits into the computer port ; Enhanced Parallel Port (EPP) has 8 bits in/out ; Extended Capability Port (ECP) has 8 bits in/out



**25-pin D-shell receptacle
(above) on a computer**



**Centronics parallel 36-pin
plug (above, to a printer)
and a 25-pin D-shell plug
(below, to a computer) on
a cable**

IDE

- **IDE** : Integrated Device Electronics and has 40 pins.
- **Data width** : 16 bits
- **Data transfer** : 133 MBps
- It can support one or two IDE devices.
- If two devices are connected to a single cable then one has to be configured as master & other as slave.
- Following IDE devices can be attached to the motherboard:
Hard disk drive
CD-ROM/DVD drives.

FDD

- Floppy Drives can be connected to the motherboard through FDD cable.
- The FDD cable can support one or two floppy disk drives.
- Drives can be $3\frac{1}{2}$ " or $5\frac{1}{4}$ " wide.
- The FDD connector is available on motherboard.
- FDD connector has 34 pins.



ASSIGNMENT

What do you mean by serial transmission and parallel transmission?