What's the difference between CAT 5 cable and CAT 5e cable?

CAT 5 cable and CAT 5e cable have several differences; the most important are as follows:

* **Network support** - CAT 5 cable will support 10/100 Ethernet. That is, Ethernet and Fast Ethernet. CAT 5e cable will support Ethernet, Fast Ethernet, and Gigabit Ethernet. CAT 5e cable is completely backwards compatible, and can be used in any application in which you would normally use CAT 5 cable.

* **Less crosstalk** - Crosstalk is the electrical interference that results when one wire's signal affects another wire's signal. CAT 5e cable has been improved over CAT 5 cable in this respect, and crosstalk has been greatly reduced.

* **Bandwidth** - This is directly related to network support, in the sense that the bandwidth is the information-carrying capacity of a system. The greater the bandwidth, the greater the information-carrying capacity in a given period of time. CAT 5e cable is rated at 100 MHz, and it is this increased bandwidth (compared to CAT 5 cable) that allows it to support Gigabit Ethernet.

If you are unsure whether to order CAT 5 OR CAT 5e, it is recommended ordering CAT 5e.

What is the difference between CAT 5e and CAT 6 cable?

Category 6 cable, commonly referred to as CAT 6, is a cable standard for Gigabit Ethernet and other network protocols that is backward compatible with the CAT 5/5e and CAT 3 cable standards. CAT 6 features more stringent specifications for crosstalk and system noise. The cable standard provides performance of up to 250 MHz and is suitable for 10BASE-T / 100BASE-TX and 1000BASE-T / 1000BASE-TX (Gigabit Ethernet). It is expected to suit the 10GBASE-T (10Gigabit Ethernet) standard, although with limitations on length if unshielded CAT 6 cable is used. CAT 6 cables can be identified by the printing on the side.

Currently there is a great deal of confusion among Ethernet cable buyers concerning whether to purchase CAT 5e, or to use CAT 6. Most of this confusion comes from a misunderstanding by the buyer that buying CAT 6 cable will give them an "all gigabit" network. This is not the case. Unless every single component in the network is gigabit rated you will never have a gigabit network, because your network will always run at the speed of your slowest device. CAT 5e cable of good quality can run near or at gigabit speeds, it just cannot be "certified" for this use. By comparison, CAT 6 is designed especially for gigabit use, and is certified to operate at said speed.

The CAT 6 cable is terminated in either the T568A scheme or the T568B scheme. As long as both ends of a cable are terminated using the same scheme, it doesn't matter which scheme is used; they are both straight through (pin 1 to 1, pin 2 to 2, etc) and the pairing is the same. Mixing T568A-terminated patch cords with T568B-terminated horizontal cables (or the reverse) does not produce problems in a facility. The T568B Scheme is by far the most widely used method of terminating patch cables.

Crossover is used for hub to hub, computer to computer, wherever two-way communication is necessary. All gigabit Ethernet equipment, and most new 10/100Mb equipment, supports automatic crossover, meaning that either a straight-through or crossover cable may be used for any connection. However, older equipment requires the use of a straight-through cable to connect a switch to a client device, and a crossover cable to connect a switch to a switch or a client to a client.

| 8P8C Wiring (T568A)					8P8C Wiring (T568B)				
Pin	**Pair**	**Wire**		**Color**	**Pin**	**Pair**	**Wire**		**Color**
1	3	1		white/green	1	2	1		white/orange
2	3	2		green	2	2	2		orange
3	2	1		white/orange	3	3	1		white/green
4	1	2		blue	4	1	2		blue
5	1	1		white/blue	5	1	1		white/blue
6	2	2		orange	6	3	2		green
7	4	1		white/brown	7	4	1		white/brown
8	4	2		brown	8	4	2		brown

Pins on 8P8C plug face
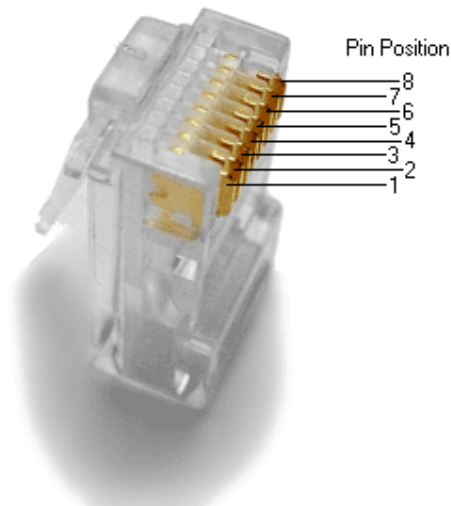
Twisted pair cables are often shielded in attempt to prevent electromagnetic interference. Because the shielding is made of metal, it may also serve as a ground. However, usually a shielded or a screened twisted pair cable has a special grounding wire added called a drain wire. This shielding can be applied to individual pairs, or to the collection of pairs. When shielding is applied to the collection of pairs, this is referred to as screening. The shielding must be grounded for the shielding to work.
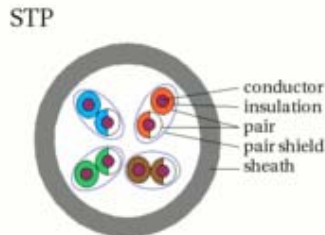
Screened unshielded twisted pair (S/UTP)

    Also known as Fully shielded (or Foiled) Twisted Pair (FTP), is a screened UTP cable (ScTP).
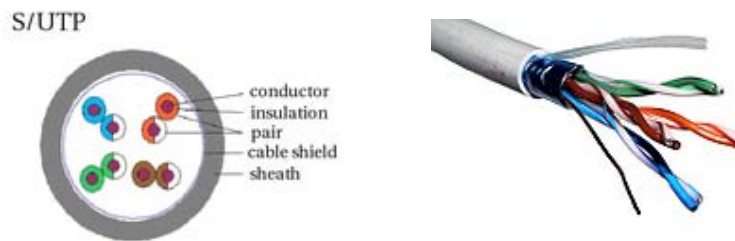
Shielded twisted pair (STP or STP-A)

    STP cabling includes metal shielding over each individual pair of copper wires. This type of shielding protects cable from external EMI (electromagnetic interferences). e.g. the 150 ohm shielded twisted pair cables defined by the IBM Cabling System specifications and used with token ring networks.

Screened shielded twisted pair (S/STP or S/FTP)

    S/STP cabling, also known as Screened Fully shielded Twisted Pair (S/FTP), [1] is both individually shielded (like STP cabling) and also has an outer metal shielding covering the entire group of shielded copper pairs (like S/UTP). This type of cabling offers the best protection from interference from external sources, and also eliminates alien crosstalk.