





Category 6 cable

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Cat 6- Category - 6, ([ANSI/TIA/EIA-568-B.2-1](#)) is a cable standard for [Gigabit Ethernet](#) and other [network protocols](#) that is [backward compatible](#) with the [Category 5/5e](#) and [Category 3 cable](#) standards. Cat-6 features more stringent specifications for [crosstalk](#) and system noise. The cable standard is suitable for [10BASE-T](#) / [100BASE-TX](#) and [1000BASE-T](#) (Gigabit Ethernet) connections. It provides performance of up to 250 MHz.

The cable contains four twisted copper wire pairs, just like earlier copper cable standards. Although Cat-6 is sometimes made with 23 gauge wire, this is not a requirement; the ANSI/TIA-568-B.2-1 specification states the cable may be made with 22 to 24 gauge wire, so long as the cable meets the specified testing standards. When used as a patch cable, Cat-6 is normally terminated in [RJ-45](#) electrical connectors, although some Cat-6 cable may be difficult to attach RJ-45 connectors without a special modular piece and is technically not standards compliant. If components of the various cable standards are intermixed, the performance of the signal path will be limited to that of the lowest category. As with all cables defined by TIA/EIA-568-B, the maximum allowed length of a Cat-6 [horizontal cable](#) is 90 meters (295 feet). A complete channel (horizontal cable plus cords on either end) is allowed to be up to 100 meters in length, depending upon the ratio of cord length:horizontal cable length.

RJ-45 Wiring ([TIA/EIA-568-BT568A](#)) RJ-45 Wiring ([TIA/EIA-568-BT568B](#))

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

Category 6a

The **TIA** is working to complete a new specification that will define enhanced performance standards for unshielded twisted pair cable systems. Draft specification ANSI/TIA/EIA-568-B.2-10 specifies cable systems, frequently referred to as "Category 6a", that operate at frequencies up to 500 MHz and will provide up to 10 Gbit/s throughput.

Category 6a specifies cable operating at minimum frequency of 500 MHz, for both shielded and unshielded. It can support future 10Gb/s applications up to the maximum distance of 100 meters on a 4-conductor channel.

External links

- [Cat 6 FAQ](#)
- [Cat 5e vs Cat 6](#)

Unshielded Twisted Pair Cabling Standards



- **Cat 1**: Currently unrecognized by TIA/EIA. Previously used for POTS telephone communications, ISDN and doorbell wiring.
- **Cat 2**: Currently unrecognized by TIA/EIA. Previously was frequently used on 4 Mbit/s token ring networks.
- **Cat 3**: Currently defined in TIA/EIA-568-B, used for data networks utilizing frequencies up to 16 MHz. Historically popular for 10 Mbit/s Ethernet networks.
- **Cat 4**: Currently unrecognized by TIA/EIA. Provided performance of up to 20 MHz, and was frequently used on 16 Mbit/s token ring networks.
- **Cat 5**: Currently unrecognized by TIA/EIA. Provided performance of up to 100 MHz, and was frequently used on 100 Mbit/s ethernet networks. May be unsuitable for 1000BASE-T gigabit ethernet.
- **Cat 5e**: Currently defined in TIA/EIA-568-B. Provides performance of up to 100 MHz, and is frequently used for both 100 Mbit/s and gigabit ethernet networks.
- **Cat 6**: Currently defined in TIA/EIA-568-B. It provides performance of up to 250 MHz, more than double category 5 and 5e.
- **Cat 6a**: Future specification for 10 Gbit/s applications.
- **Cat 7**: An informal name applied to ISO/IEC 11801 Class F cabling. This standard specifies four individually-shielded pairs (STP) inside an overall shield. Designed for transmission at frequencies up to 600 MHz.

See also: [TIA/EIA-568-B](#) • [Ethernet](#) • [8P8C](#) • [Ethernet crossover cable](#) • [Twisted pair](#)

Categories: [Ethernet](#) | [Networking hardware](#) | [Signal cables](#)

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