

UART (Universal Asynchronous Receiver Transmitter) 通用异步收发器

The Integrated Circuit (IC) that handles the data communications for a computer.

It converts the parallel data (so called because they are stored, retrieved, and transferred 8 or more bits at a time) in a PC (for example) to serial asynchronous data communications (in which data are sent and received 1 bit at a time) for transmission over a data link, such as an EIA-232 cable or modem connection. It is always less expensive (and usually simpler) to send data 1 bit at a time, especially on links that are longer than a few meters.

Also, a UART converts received serial data to parallel for further processing by the receiving computer.

Other UART functions include the following:

1. Adding start and stop bits to the transmitted data so that the receiver's UART can synchronize with the sender (that is, so that it can know where the bit edges are and which bit is the first bit of data).
2. Generating a hardware interrupt when a character is received and when the UART is ready for another character to send.
3. Controlling and reading the status of the modem signals (RTS, CTS, etc.).

Early PCs used the 8250 (or the equivalent 16450) UART. Current PCs use the **16550A** (or an equivalent), which has built-in hardware buffering.

If the UART also supports synchronous data communications, then it is sometimes called a Universal Synchronous/Asynchronous Receiver Transmitter (**USART**); other times, it is simply called a UART. The USART would then be able to support **BISYNC** (双向同步控制协议) and **HDLC** (高级数据链路控制协议) and provides features such as:

1. Sync or flag character detection and generation.
2. Zero-bit stuffing.
3. **CRC**(循环冗余校验) generation and checking.