

## 14 芯和 20 芯的 JTAG 的原理图设计

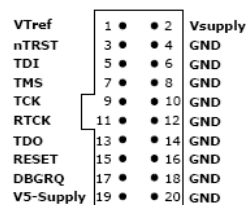
JTAG 是标准的，常见各种原理图中有微小的差别，但功能都是一样！

Jlink 的设计兼容性非常好，早期的 44B0,LPC22XX 到新的 STR9,STM32 等芯片我们都测试过，在我们开发产品中提高了效率。

### 1. JTAG 20 针说明

## 6.1 JTAG Connector

J-Link and J-Trace have a JTAG connector compatible to ARM's Multi-ICE. The JTAG connector is a 20 way Insulation Displacement Connector (IDC) keyed box header (2.54mm male) that mates with IDC sockets mounted on a ribbon cable.



### 6.1.1 Pinout

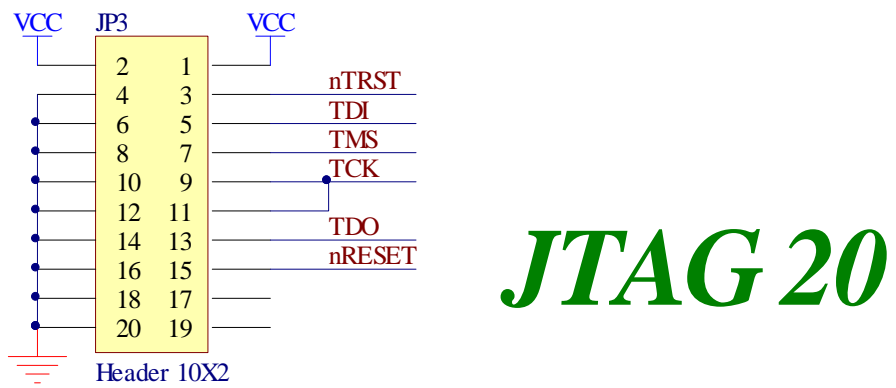
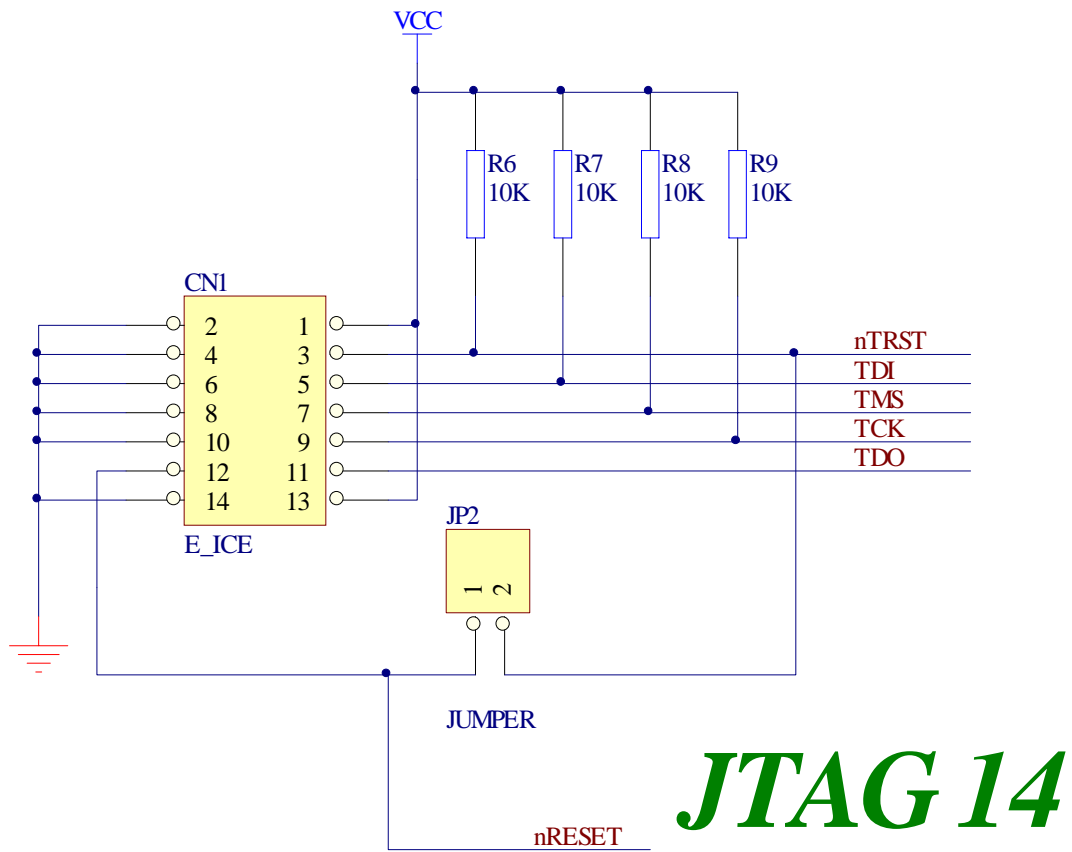
The following table lists the J-Link / J-Trace JTAG pinout.

PIN	SIGNAL	TYPE	Description
1	VTref	Input	This is the target reference voltage. It is used to check if the target has power, to create the logic-level reference for the input comparators and to control the output logic levels to the target. It is normally fed from Vdd of the target board and must not have a series resistor.
2	Vsupply	NC	This pin is not connected in J-Link. It is reserved for compatibility with other equipment. Connect to Vdd or leave open in target system.
3	nTRST	Output	JTAG Reset. Output from J-Link to the Reset signal of the target JTAG port. Typically connected to nTRST of the target CPU. This pin is normally pulled HIGH on the target to avoid unintentional resets when there is no connection.
5	TDI	Output	JTAG data input of target CPU.- It is recommended that this pin is pulled to a defined state on the target board. Typically connected to TDI of target CPU.
7	TMS	Output	JTAG mode set input of target CPU. This pin should be pulled up on the target. Typically connected to TMS of target CPU.
9	TCK	Output	JTAG clock signal to target CPU. It is recommended that this pin is pulled to a defined state of the target board. Typically connected to TCK of target CPU.
11	RTCK	Input	Return test clock signal from the target. Some targets must synchronize the JTAG inputs to internal clocks. To assist in meeting this requirement, you can use a returned, and retimed, TCK to dynamically control the TCK rate. J-Link supports adaptive clocking, which waits for TCK changes to be echoed correctly before making further changes. Connect to RTCK if available, otherwise to GND.
13	TDO	Input	JTAG data output from target CPU. Typically connected to TDO of target CPU.
15	RESET	I/O	Target CPU reset signal. Typically connected to the RESET pin of the target CPU, which is typically called "nRST", "nRESET" or "RESET".
17	DBGRQ	NC	This pin is not connected in J-Link. It is reserved for compatibility with other equipment to be used as a debug request signal to the target system. Typically connected to DBGRQ if available, otherwise left open.
19	5V-Supply	Output	This pin is used to supply power to some eval boards. Not all J-Links supply power on this pin, only the KS (Kickstart) versions. Typically left open on target hardware.

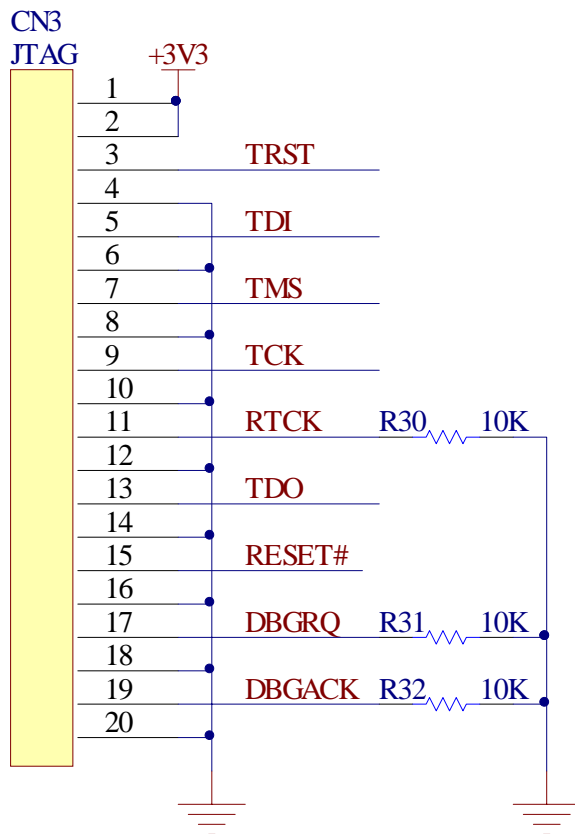
Table 6.1: J-Link / J-Trace pinout

Pins 4, 6, 8, 10, 12, 14, 16, 18, 20 are GND pins connected to GND in J-Link. They should also be connected to GND in the target system.

2.S3C44B0 上 20 针和 14 针连接



3. STM32 上连接 (CPU 内部的一些上拉简化了连接)



4. LPC22XX 上的连接

