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# (ulinkplus\_swd\_adapter.htm) (default.ht (ulinkplus\_debug\_and\_trace.htm) JTAG Interface

Home (default.htm) » Debug and Trace (ulinkplus\_debug\_and\_trace.htm) » JTAG/SWD Interface

The ULINKplus supports an isolated JTAG/SWD interface using a low-cost 10-pin (0.0

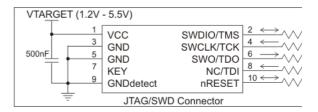
#### **Technical characteristics**

Interface	Description
JTAG/SWD	Voltage range: 1.2 V 5.5 V Clock speed: configurable up to 10 MHz SWO trace capturing: data rate up to 50 Mbit/s (UART/NRZ Mo Isolation: 1 kV Supports hot-plugging to a running target

#### **Interface Schematic**

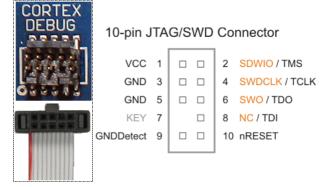
The target interface schematic shows the JTAG and Serial Wire interface circuits of UI isolated and support hot-plugging while the target is running.

Use this schematic to help with board design, and for analyzing and debugging your ta



## JTAG/SWD Connector

The 10-pin, 0.05" JTAG/SWD connector offers ITM and DWT trace information. In SW for debugging: one bi-directional pin (SWDIO) transfers the information and the second data. A third pin (SWO) delivers the trace data at minimum system cost. The Serial Wi shared.



#### ✓ Note

- KEY (position 7) has no pin and serves only as a key to properly orient the connect
- VCC (pin 1) provides the supply voltage for the JTAG/SWD I/O driver and is require isolated connection.
- The 10-pin connector is a Samtec 10-pin: FTSH-105-01-L-DV-007-K (https://wwws.samtec.com/standards/jtag.aspx) connector with pin 7 removed. It's c 0.188" (6.35mm x 4.78mm).

## **JTAG and Serial Wire Signals**

Because the 10-pin **JTAG/SWD** connector supports both JTAG and Serial Wire signal debugger (ulinkplus\_ctx\_debugdrivercfg.htm) for either JTAG or Serial Wire mode to s

### JTAG Signals

Signal	Connects to
TMS	Test Mode State pin Use 100K Ohm pull-up resistor to VCC.
TDO	Test Data Out pin.
TDI	Test Data In pin Use 100K Ohm pull-up resistor to VCC.
TCLK	Test CLocK pin Use 100K Ohm pull-down resistor to GND.
VCC	Positive Supply Voltage Power supply for JTAG interface drivers.
GND	Digital ground.
RESET	RSTIN/ pin Connect this pin to the (active low) reset input of the t

## **Serial Wire Signals**

The Serial Wire mode differs to JTAG debugging, because only two pins are used for t pin can be used optionally to trace data. JTAG pins and SW pins are shared.

- TCLK is SWCLK (Serial Wire Clock)
- TMS is SWDIO (Serial Wire debug Data Input/Output)
- TDO is SWO (Serial Wire trace Output)

Signal	Connects to				
SWDIO	Data I/O pin Use 100K Ohm pull-up resistor to VCC.				
SWO	Optional trace output pin.				
SWCLK	Clock pin Use 100K Ohm pull-down resistor to GND.				
VCC	Positive Supply Voltage Power supply for JTAG interface drivers.				
GND	Digital ground.				
RESET	RSTIN/ pin Connect this pin to the (active low) reset input of the				

#### 📝 Note

 Usually, devices do not include pull-up or pull-down resistors on JTAG nor SW pins added externally onto the board. However, do not add resistors when the device inc

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