

Overview

The JTAG Programmer is designed for level conversion between the parallel port (LPT) and a JTAG interface. It is fully compatible to the Xilinx parallel cable III, with improved reliability, caused by Schmitt Trigger inputs on the LPT side. It features the old Xilinx 9 pin JTAG connector, as well as the new 14 pin header with 2mm pitch. For ease of use with Trenz Electronic FPGA Boards, an additional 10 pin header with 2,54mm pitch is added, which is capable of powering the programmer, even with JTAG voltage levels below 3.3V.

Features

- Level conversion between parallel (LPT) and JTAG port
- Fully compatible with Xilinx parallel cable III
- Adapter can be powered by the target
- Flexible power supply input via JTAG port, or USB
- JTAG voltage level adjustment by reference input voltage
- Improved reliability, due to Schmitt Trigger inputs on the LPT side

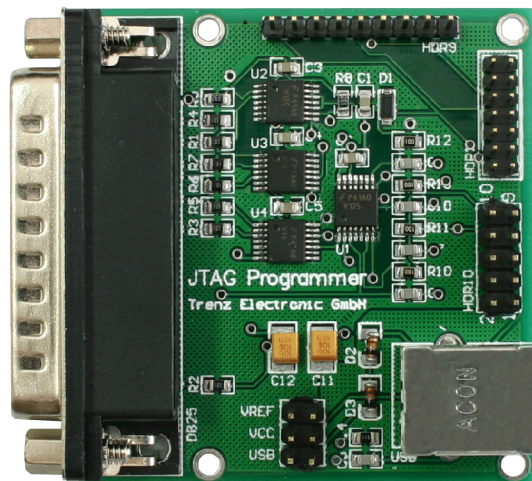


Figure 1: JTAG Programmer

Details

To locate the connectors on the board see Figure 2.

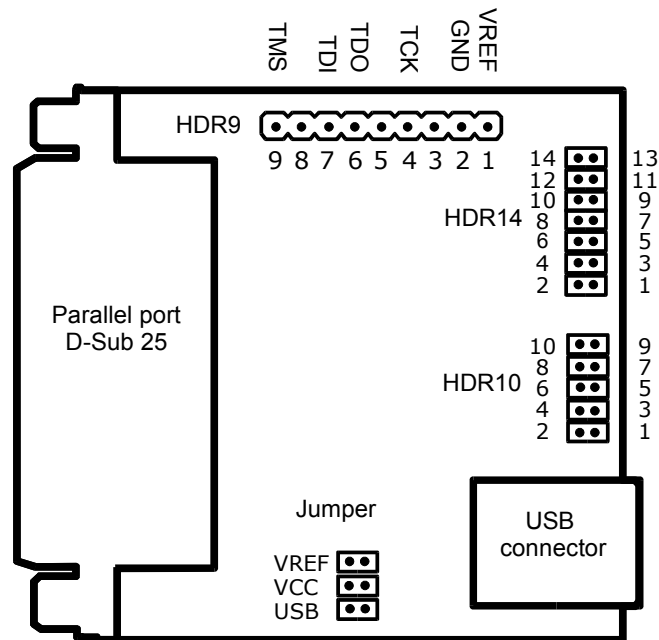


Figure 2: Location of jumper and connectors

Power Supply

The programmer requires a 3.3V powersupply on the LPT side. There are three options, selectable with Jumpers.

Attention:
Short only one Jumper at the same time.

Powered by target using VREF

If your target board implements a 3.3V JTAG chain, you can power the programmer with the VREF line from any of the JTAG connectors. Set the jumper to VREF.

Powered by target using VCC

If your target supports the pinout of the HDR10 connector, the 3.3V VCC line can be used to power the programmer. Set the jumper to VCC.

External powered via USB

If you have a low voltage (below 3.3V) JTAG chain, and can't use connector HDR10, you have to supply the programmer externally. Simply connect an USB cable. Set jumper to USB.

JTAG connectors

There are three JTAG connectors available. The voltage level of the JTAG signals depends on the reference input voltage. It ranges between 2V and 5V.

HDR9

Supports the older version of the Xilinx connector.

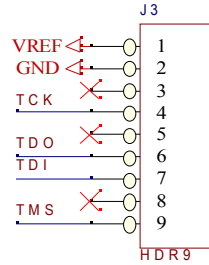


Figure 3: HDR9

HDR14

Supports the newer version of the Xilinx connector.

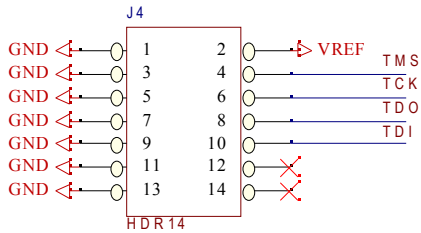


Figure 4: HDR14

HDR10

Proprietary (compatible to Trenz Electronic Spartan-3 Baseboards) connector, featuring an extra VCC voltage line for programmer power supply with low voltage JTAG chains.

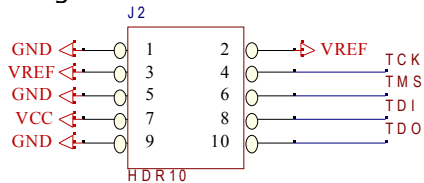


Figure 5: HDR10

Note: Starting with Revision 01 of the JTAG Programmer, Pin2 is no longer connected

Parallel port

To connect your JTAG programmer to the PC use a standard parallel cable.

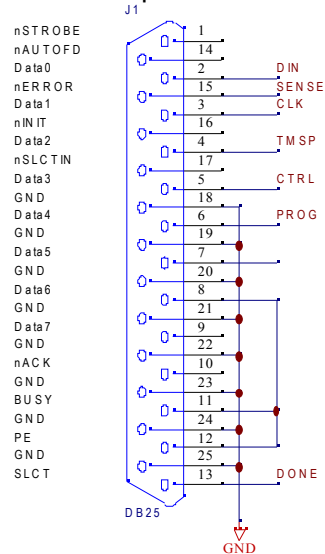


Figure 6: Parallel port

USB connector

This connector is only provided for power supply. It has no USB related function.

Schematics

Figure 7 shows the voltage level conversion schematic and figure 8 the power supply schematic.

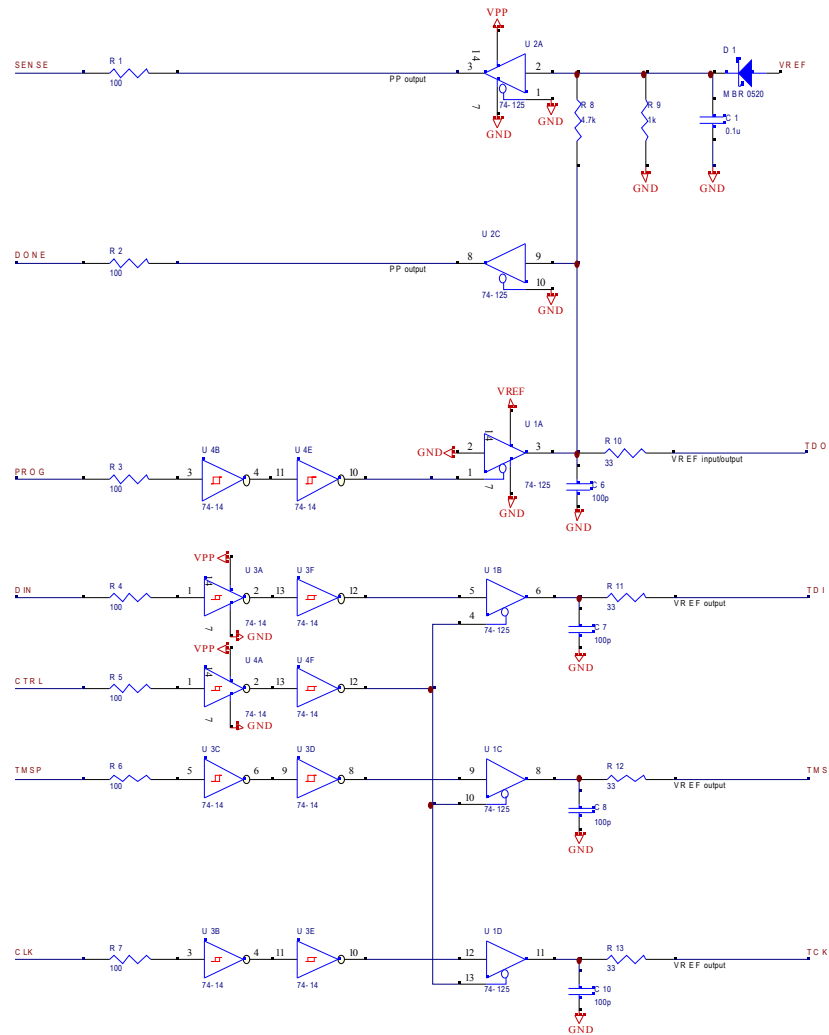


Figure 7: schematic of driver section

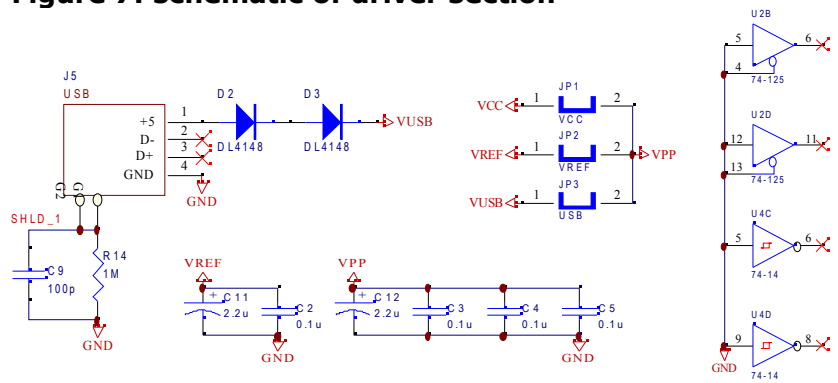


Figure 8: schematic of power supply section

Ordering Details

Packing List

- JTAG Adapter
- Parallel cable
- JTAG cable with AMP Micromatch connector, suitable for HDR10

Order number

The Order Number is: **TE0149-00**

Revision History

Rev.	Date	Who	Description
0.9	20040907	TS	Created
1.0	20050329	TT	Pin 2 of J2 changed

Table 1: Revision History