

Xilinx Parallel Cable III (PC3) Programmer for Xilinx CPLD/FPGA

Document Version:

- 20111001: Added SKU-IV and how to identify the different SKUs.
- 20111005: Corrected the pins in SKU-IV; added pin definitions in SKU-III
- 20111105: Some SKU-I has Blue pin for TDO instead of Purple; Expanded the SKU-I model to be type A, B, C; Corrected the pin orders for SKU-I-C; added pin order reference for Digilent C-Mod and Matrix Glitcher.
- 20111105: Some more corrections.
- 20111113: Updated details for SKU-I-B.
- 20111114: Corrected the SKU-I-C 10PIN to one 6PIN converter and signal specification.
- 20120710: Better signal documentation for SKU-I-B and SKU-I-C, easier to match the actual location.

Features:

- Support all Xilinx CPLD/FPGA programming/debug via JTAG interface, including C-Mod XC2C64A
- Support JTAG/Slave Serial two download modes;
- Support Chicscope logical analysis;
- Support on board live flash of SPI Flash;

The PC3 schematic demonstrates support for two interfaces to target devices. The first interface is an IEEE STD 1149.1 (JTAG) interface which can connect to the JTAG port for a CPLD, ISP PROM, or FPGA. The second interface is a connect to the slave-serial port of an FPGA.

The original PC3 cable consisted of a cable assembly containing logic to protect the host PC's parallel port and a set of headers to connect to the target system. Also, the PC3 schematic typically requires a PC equipped with an AT compatible parallel port interface with a DB25 standard printer connector.

Product Details and Pin Configuration

SKU XILINX-PC3-I-A (six 1PIN fly wires with Black and White pins)



Supplier: HIXI

Details:

Wide working voltage: 1.8V~5V

Support 1.8V/2.5V/3.3V/5V multiple download interface voltage levels;

Quality products with 3 ICs and many protecting/pull up resistors, ensure stable programming.

All are SMD components, all product are batch production.

Quality assurance testing been done, 100% working:

- Xilinx CPLD/FPGA JTAG download mode;
- Xilinx Slave Serial download mode;
- On board live Flash programming;

Cable length: 80cm

Cable Interface: six 1PIN fly wire (none standard flexible JTAG use).

Cable Interface pin configuration:

The RED wire PIN or tagged PIN with '▼' is pin 1.

- ① **RED:** **VCC** (JTGA mode, Slave Serial mode, SPI Flash on board live flash)
- ② **BLACK:** **GND** (JTGA mode, Slave Serial mode, SPI Flash live flash)
- ③ **YELLOW:** **TCK** (JTGA mode), **CCLK** (Slave Serial mode), **SCK** (SPI Flash live flash)
- ④ **PURPLE/Blue** **TDO** (JTGA mode), **DONE** (Slave Serial mode), **SDO** (SPI Flash live flash)
- ⑤ **WHITE** **TDI** (JTGA mode), **DIN**(Slave Serial mode), **SDI** (SPI Flash live flash)
- ⑥ **GREEN:** **TMS** (JTGA mode), **PROG**(Slave Serial mode), **SEL** (SPI Flash live flash)

SKU XILINX-PC3-I-B (10PIN port with 10 to six 1PIN Converter)



Supplier: HELL

Details: Refer to XILINX-PC3-I-A

Cable length: 70cm

Cable Interface: 2.54mm DC3-10 Pin standard JTAG port with one 10PIN to six 1PIN fly wires Converter

2.54mm DC3-10PIN standard JTAG interface pin configuration:

The PIN tagged with '▼' is pin 1. While connect the converter to the programmer side JTAG port, make the '▼' signal goes to '▼'.

⑨ TDI	⑩ GND
⑦ NC	⑧ NC
⑤ TMS	⑥ NC
③ TDO	④ VCC
① TCK ▼	② GND



The Converter's pin configuration: (has the same colour-signal match as SKU-I-A).

- RED:** VCC (JTGA mode, Slave Serial mode, SPI Flash on board live flash)
- BLACK:** GND (JTGA mode, Slave Serial mode, SPI Flash live flash)
- YELLOW:** TCK (JTGA mode), CCLK (Slave Serial mode), SCK (SPI Flash live flash)
- PURPLE/Blue** TDO (JTGA mode), DONE (Slave Serial mode), SDO (SPI Flash live flash)
- WHITE** TDI (JTGA mode), DIN(Slave Serial mode), SDI (SPI Flash live flash)
- GREEN:** TMS (JTGA mode), PROG(Slave Serial mode), SEL (SPI Flash live flash)

SKU XILINX-PC3-I-C (10PIN port with 10 to one 6PIN Converter or 6 jumper wires) (retired SKU)



Supplier: HELL

Details: Refer to XILINX-PC3-I-A

Cable length: 130cm(a bit too long, if you have signal problem, try to cut it short).

Cable Interface: 2.54mm DC3-10 Pin standard JTAG port with 1 10PIN-6PIN Converter or 6 jumper wires

DC3-10PIN JTAG Interface pin configuration: (same as the SKU-I-B)

The RED wire PIN or tagged PIN with '▼' is pin 1.

⑨ TDI	⑩ GND
⑦ NC	⑧ NC
⑤ TMS	⑥ NC
③ TDO	④ VCC
① TCK ▼	② GND



The one 10PIN to one 6PIN Converter PIN configuration:

Colour configuration of the converter (same colour-signal match as SKU-I-A/SKU-I-B):

The signal order is same as Digilent C-Mod/Matrix Glitcher.

While connect the converter to the programmer side JTAG port, make the '▼' signal goes to '▼'.

The PIN tagged with '▼' is pin 1.

RED: VCC
BLACK: GND
YELLOW: TCK
Purple/Brown: TDO
WHITE: TDI
GREEN: TMS

Or a few old production batch might have this colour configuration and order:

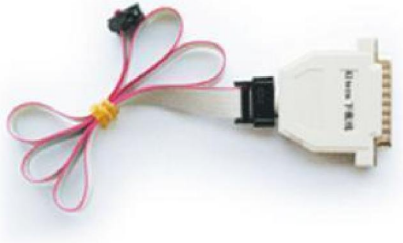
 | 1 | 2 | 3 | 4 | 5 | 6 |

Black tube one is PIN 1 (in the order illustrated above).

PIN	FPGA	JTAG
1	CCLK	TCK
2	GND	GND
3	D/P	TDO
4	VCC	VCC
5	nPROG	TMS
6	DIN	TDI

1 ORANGE: TCK
2 RED: GND
3 YELLOW: TDO
4 BROWN: VCC
5 BLUE: TMS
6 GREEN: TDI

SKU XILINX-PC3-II (10PIN port with connector and 6 jumper wires)(retired SKU)



Supplier: HEZH/LCGO

Details: Refer to XILINX-PC3-I-A

Cable length:

Cable Interface: 2.54mm DC3-10 Pin standard JTAG port with connector and jumper wires

Cable Interface pin configuration:

- | | |
|---------|-------|
| ① TCK ▼ | ② GND |
| ③ TDO | ④ VCC |
| ⑤ TMS | ⑥ NC |
| ⑦ NC | ⑧ NC |
| ⑨ TDI | ⑩ GND |

The RED wire PIN or tagged PIN with '▼' is pin 1.

Recommend way to connect to the target board:

1. Solder a **2.54mm DC3-10PIN Male header** to the target board.



2. Plug the 2.54mm DC3-10PIN Male header into to the programmer cable, then connect the programmer cable to your target board's pins using flexible wires.



SKU XILINX-PC3-III (Tagged pins, Red and Blue pins)(retired SKU)

Supplier: RENR, end of production

Details: Refer to SKU XILINX-PC3-I-A

Cable length: 40cm/70cm

Cable Interface: 6PIN fly wires

Cable Interface pin configuration: tagged on each fly wire

RED: **VCC** (JTGA mode, Slave Serial mode, SPI Flash on board live flash)

BLACK: **GND** (JTGA mode, Slave Serial mode, SPI Flash live flash)

BROWN: **TDO** (JTGA mode), **DONE** (Slave Serial mode), **SDO** (SPI Flash live flash)

YELLOW: **TDI** (JTGA mode), **DIN**(Slave Serial mode), **SDI** (SPI Flash live flash)

BLUE: **TMS** (JTGA mode), **PROG**(Slave Serial mode), **SEL** (SPI Flash live flash)

GREEN: **TCK** (JTGA mode), **CCLK** (Slave Serial mode), **SCK** (SPI Flash live flash)

SKU XILINX-PC3-IV (With Pink and Blue pins)(retired SKU)



Supplier:JIE8, end of production

Details: Refer to SKU Xilinx-PC3-I-A

Cable Interface pin configuration:

The RED wire PIN or tagged PIN with '▼' is pin 1.

① **RED:** **VCC** (JTGA mode, Slave Serial mode, SPI Flash on board live flash)

② **PINK:** **GND** (JTGA mode, Slave Serial mode, SPI Flash live flash)

③ **YELLOW:** **TCK** (JTGA mode), **CCLK** (Slave Serial mode), **SCK** (SPI Flash live flash)

④ **GREEN:** **TDO** (JTGA mode), **DONE** (Slave Serial mode), **SDO** (SPI Flash live flash)

⑤ **BLUE:** **TDI** (JTGA mode), **DIN**(Slave Serial mode), **SDI** (SPI Flash live flash)

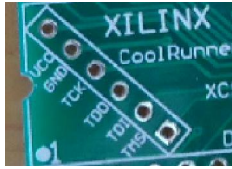
⑥ **PURPLE:** **TMS** (JTGA mode), **PROG**(Slave Serial mode), **SEL** (SPI Flash live flash)

Reference

Matrix Glitcher JTAG programming port pin order



Digilent C-Mod JTAG programming port pin order:



Support:

yfh2016@gmail.com

Check my eBay listing:

[XenosagaIV Electronics](#)

<http://www.ebay.com/sch/xenosagaiv/m.html>

Note

The product photo is for illustration purpose only, the actual product could have some difference.