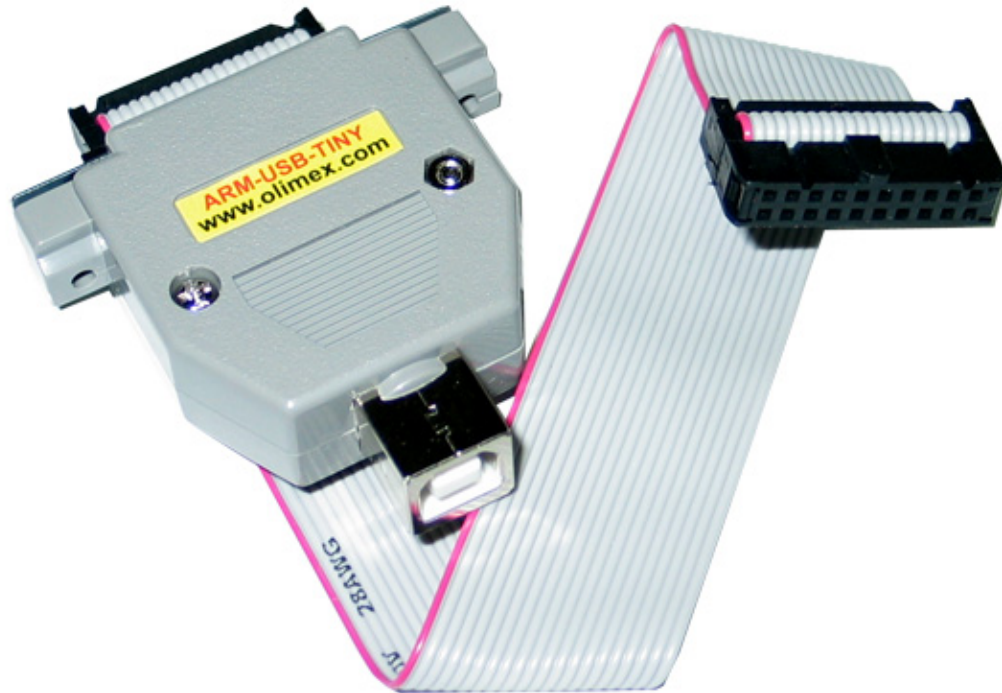


ARM-USB-TINY LOW COST ARM USB JTAG (SUPPORTED BY OPENOCD OPEN SOURCE ARM DEBUGGER)



FEATURES

- Debug all ARM microcontrollers supported by OpenOCD
- Fast speed USB 2.0 JTAG dongle interface, can be used with all ARM devices for programming and debugging.
- Uses ARM's standard 2x10 pin JTAG connector
- supports ARM targets working in voltage range 2.0 – 5.0 V DC
- software supported by OpenOCD (open source) debugger
- comes with CD with Windows installer for full featured and open source tools as alternative to the commercial ARM development packages: GCC C compiler, openOCD debugger and Eclipse IDE.
- dimensions 50x40 mm (2x1.6") + 20 cm (8") JTAG cable

FAQ:

Q: Can I use ARM-USB-TINY with EW-ARM?

A: IAR have beta support for GDB server in their 5.xx version of EW-ARM, and OpenOCD can be used as GDB server, but as their disclaimer says it's limited to STR, so as a whole this combination is not reliable and well tested. So it may work or it may not work, hopefully the GDB support from EW-ARM will be improved in future.

Q: I use Windows XP x64, how I can update the USB drivers?

A: FTDI have x64 drivers on their web, download them and use our ARM-USB-TINY PID: 0x0004, VID: 0x15BA to install the drivers.

Q: how to install ARM-USB-TINY to work with CrossWorks:

A: Use: "Generic FTD2232" target interface

1. Right click on a blank space in the targets window and select "New Target Interface > Generic FT2232 Device".
2. Right click on the new target interface and select "Properties" - set the following properties:

nSRST Inversion Mask 0x0200

nSRST Mask = 0x0200

nTRST Inversion Mask = 0x0000

nTRST Mask - 0x0400

Output Pins = 0x0F1B

Output Value = 0x0408

PID: 0x0004

VID: 0x15BA

In CrossWorks 1.7 there are Target interfaces for Olimex JTAGs, note that RTCK is not used with FT2232 design so your JTAG clock should not exceed 1/6 of your target MCU clock or the JTAG will lock up, start with JTAG divider 10 and decrease until you are able to debug to find your own value for your target.

Q: What is the difference between ARM-USB-OCD and ARM-USB-TINY?

A: ARM-USB-TINY is stripped down version of ARM-USB-OCD, the differences are: no output buffers just current limitation resistor protectors, no RS232, no power supply to target.

Q: Can I debug high voltage targets with ARM-USB-TINY?

A: ARM-USB-TINY is not isolated, but you can use [USB-ISO](#) isolator device to protect your PC while debugging high voltage targets.

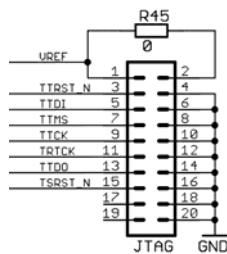


ARM-USB-OCD is unique device which combine **JTAG debugging** hardware, **RS232 virtual port** and **power supply adapter** in one single compact form. Many of the new laptop computers have no parallel nor serial ports but only USB, with ARM-USB-OCD you can debug your ARM boards, have full featured virtual RS232 port with all modem signals on it and the power jack can provide three fixed value voltages **5V – 9V – 12V DC** via jumper selection.

The base features are:

- based on **FT232L** IC from Future Technology Devices International Ltd.
- fast speed **USB 2.0 JTAG** dongle interface, can be used with any ARM devices for programming and debugging (which are currently supported by openOCD).
- the JTAG cable uses ARM's standard 2x10 pin JTAG connector
- supports ARM targets working in voltage range **2.0 – 5.0 V DC**
- software supported by **OpenOCD** (open source) debugger
- adds virtual **RS232** port to your computer with all modem signals like: DTR, DSR, DCD, RTS, CTS, Rx, Tx
- can be used as **power supply** to your target board with three jumper selectable power supplies: 5V 9V and 12VDC, USB source current is limited with resettable fuse at 300mA, at the different output voltage the maximum current is different: 5V/200mA, 9V/100mA, 12V/70mA, note that this also depend on your USB host current capabilities, if other USB devices are attached to your computer or if the laptop is running on batteries these figures may be different and depend on your computer USB host.
- **CD with Windows installer** for full featured and open source tools as alternative to the commercial ARM development packages: **GCC C compiler**, **openOCD debugger** and **Eclipse IDE**.

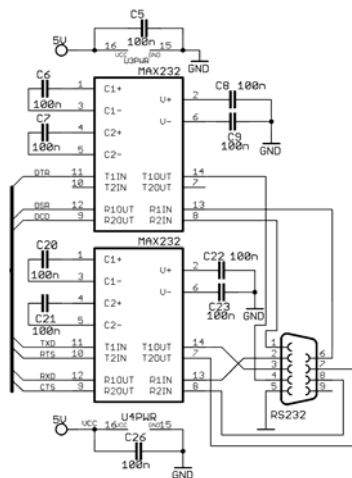
FT232L signal assignments:



JTAG signals

VREF – voltage follower input for the output buffers adjust JTAG signals as per your target board voltage levels

- ADBUS0** -> **TCK**;
- ADBUS1** -> **TDI**;
- ADBUS2** -> **TDO**;
- ADBUS3** -> **TMS**;
- ADBUS4** -> 0 to **enable** JTAG buffers;
- ADBUS5** -> 0 if **target** present;
- ADBUS6** -> **TSRST** in;
- ADBUS7** -> **RTCK**;
- ACBUS0** -> **TRST**;
- ACBUS1** -> **TSRST**;
- ACBUS2** -> **TRST** buffer enable
- ACBUS3** -> **RED LED**;



RS232 signals

- BDBUS0** -> RS232 Tx
- BDBUS1** -> RS232 Rx
- BDBUS2** -> RS232 RTS
- BDBUS3** -> RS232 CTS
- BDBUS4** -> RS232 DTR
- BDBUS5** -> RS232 DSR
- BDBUS6** -> RS232 DCD

Power supply jumpers:



the power supply jumpers are on right side of the 2x10 pin JTAG connector.

- If both jumpers are open the output voltage is **12VDC**
- If **right** jumper is closed the output voltage is **9VDC**
- If **left** jumper is closed the output voltage is **5VDC** (this is the default setting)