



Trenz Electronic USB Firmware

User Manual

UM-USB-Firmware (v 1.02) 2 April 2012

Trenz Electronic GmbH

Overview

This user manual shows how to work with the USB microcontroller firmware Trenz Electronic FPGA modules. The manual contains firmware upgrade and firmware recovery instructions. The structure of custom FWU file format is also described.

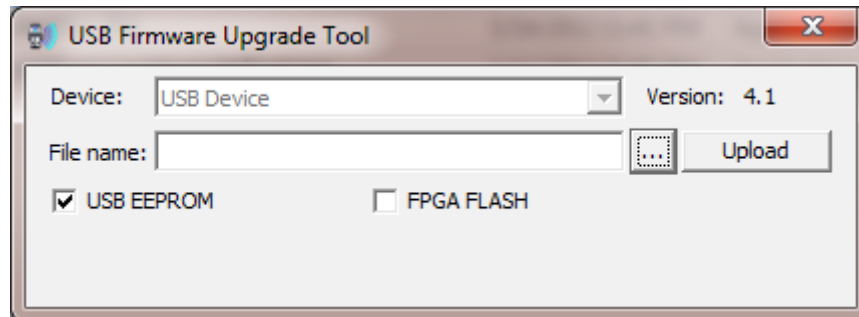
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1 Firmware Upgrade

1.1 Using USB Firmware Upgrade Tool

- Download firmware file in fwu format from [TE-USB-Suite/firmware](#).
- Run USBFirmwareUpgradeTool.exe



- Press “...” button to select *.fwu file with needed firmware version.
- Check “USB EEPROM” checkbox and uncheck “FPGA FLASH” checkbox.
- Press “Upload” button to start firmware upgrade procedure.
- Wait operation to complete.

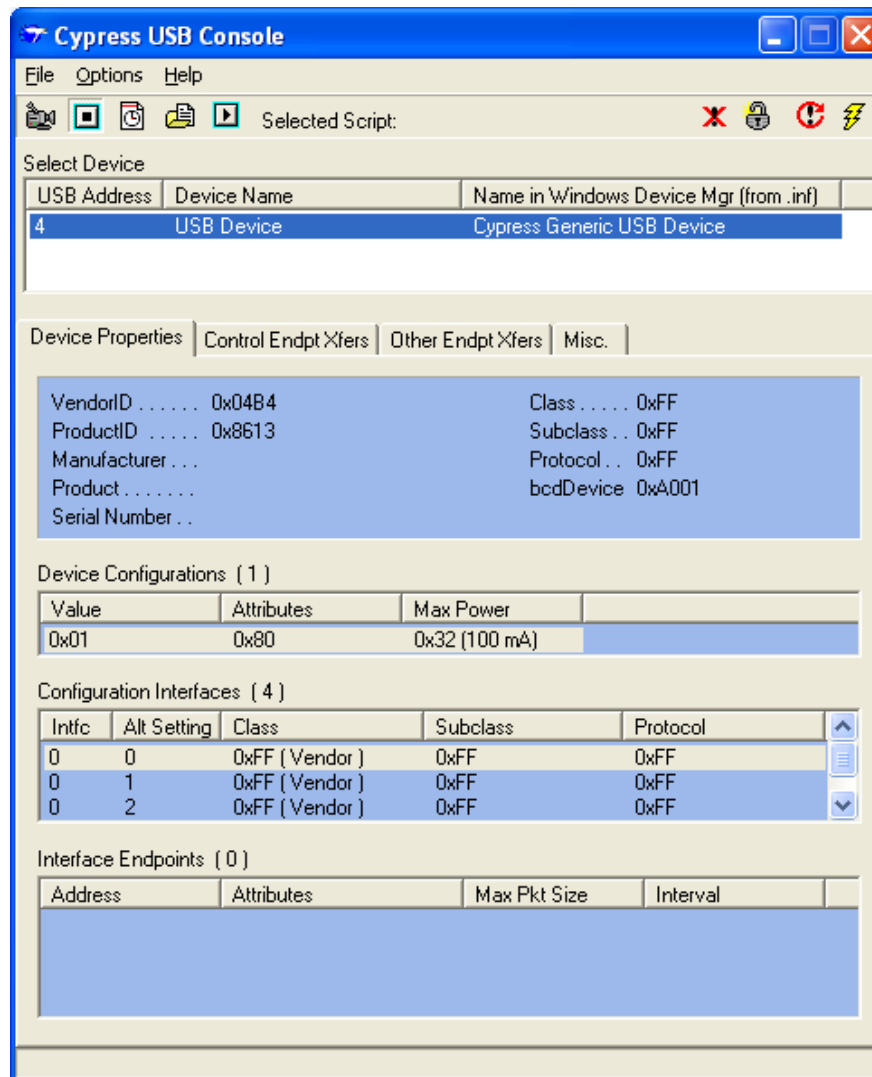
2 Firmware recovery

2.1 Requirements

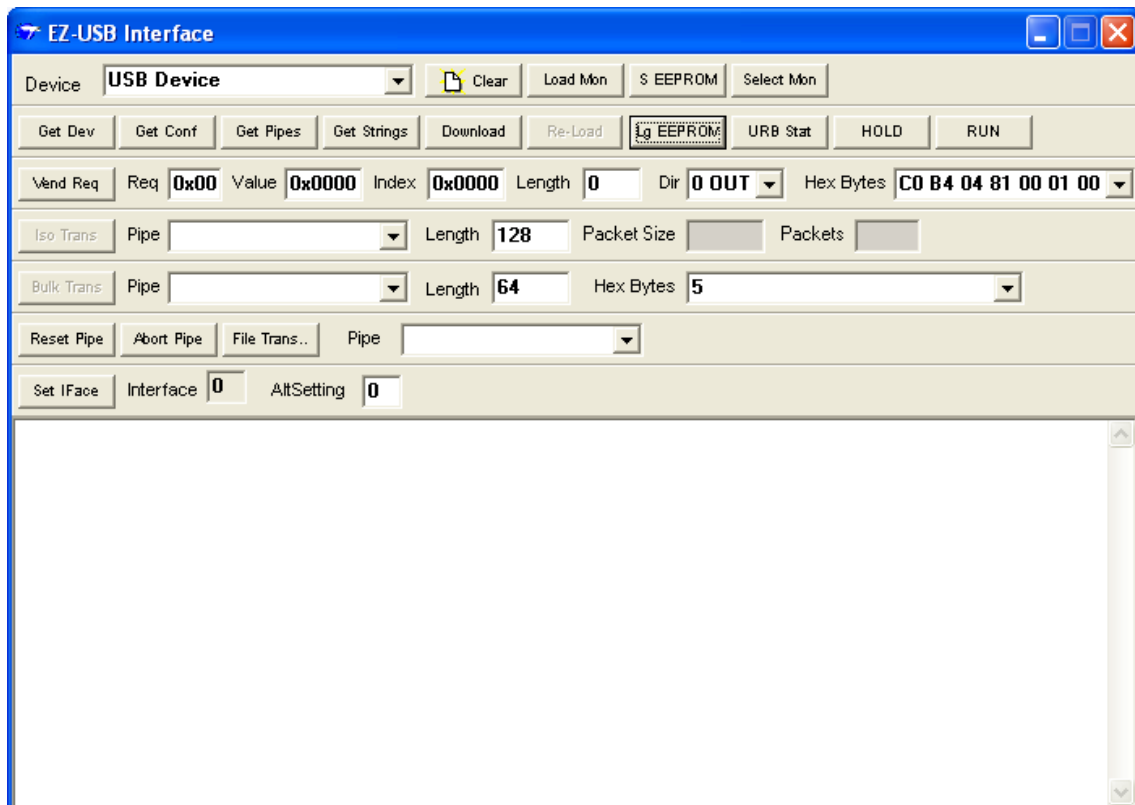
To use tool described in this guide generic Cypress FX2 driver required to be installed at host computer. Can be found it in *TE-USB-Suite\Drivers\Recovery* folder.

2.2 Recovery procedure

- Download firmware file in iic format from [TE-USB-Suite/firmware](#).
- To start recovery using SypressConsole tool default USB Vendor ID and USB Device ID should be loaded into FX2 microcontroller. To made it on TE modules found “EEPROM” switch and put it to “OFF”. Refer to module manual for switch location.
- Turn ON module power supply.
- Connect module to host computer using USB cable.
- Run “Cypress USB Console” tool. Can be found in [TE-USB-Suite/tools/Recovery.zip](#).



- Put "EEPROM" switch on module to "ON".
- Click "Options → EZ-USB Interface".



- Press “Lg EEPROM” button.
- Select iic file with required firmware version.
- Press “Open” to start writing to EEPROM.
- Upgrade process is displayed in status window and is completed when “Download Successful” text is displayed

3 Working with FWU files

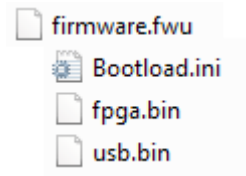
3.1 FWU file description

FWU file it's special file format used to store binary information, which contain FX2 microcontroller firmware, FPGA bitstream and configuration options data. In general, fwu file it's zip container which includes 3 files needed to module configuration.

3.2 FWU file structure

FWU container should include 3 files with predefined names:

- Bootload.ini
- usb.bin
- fpga.bin



3.3 *Bootload.ini*

Simple configuration file containing options for USBFirmwareUpgradeTool.

This file should contain:

```
[Info]
Version=1.0;
DeviceType=3
[Settings]
FPGABitSwap=1
FPGAPowerON=1
```

3.4 *fpga.bin*

FPGA Bitstream file for FPGA chip using on module. See module user manual for detailed instruction about bitstream generation options.

3.5 *usb.bin*

FX2 microcontroller firmware in binary format.

4 Glossary of Abbreviations and Acronyms



A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.



A CAUTION notice denotes a risk. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in a fault. (undesired condition that can lead to an error) Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

| | |
|------------|-----------------------------------------------------|
| API | application programming interface |
| B2B | board-to-board |
| DSP | digital signal processing; digital signal processor |
| EDK | Embedded Development Kit |
| IOB | input / output blocks; I/O blocks |
| IP | intellectual property |
| ISP | In-System Programmability |
| PB | push button |
| SDK | Software Development Kit |
| TE | Trenz Electronic |
| XPS | Xilinx Platform Studio |

5 Legal Notices

5.1 Document Warranty

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To confront directly with the responsibility toward the environment, the global community and eventually also oneself. Such a resolution should be integral part not only of everybody's life. Also enterprises shall be conscious of their social responsibility and contribute to the preservation of our common living space. That is why Trenz Electronic invests in the protection of our Environment.

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Trenz Electronic is a manufacturer and a distributor of electronic products. It is therefore a so called downstream user in the sense of [REACH](#). The products we supply to you are solely non-chemical products (goods). Moreover and under normal and reasonably foreseeable circumstances of application, the goods supplied to you shall not release any substance. For that, Trenz Electronic is obliged to neither register nor to provide safety data sheet.

According to present knowledge and to best of our knowledge, no [SVHC \(Substances of Very High Concern\) on the Candidate List](#) are contained in our products.

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6.2 RoHS (Restriction of Hazardous Substances) compliance statement

Trenz Electronic GmbH herewith declares that all its products are developed, manufactured and distributed RoHS compliant.

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Information for users within the European Union in accordance with Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment (WEEE).

Users of electrical and electronic equipment in private households are required not to dispose of waste electrical and electronic equipment as unsorted municipal waste and to collect such waste electrical and electronic equipment separately. By the 13 August 2005, Member States shall have ensured that systems are set up allowing final holders and distributors to return waste electrical and electronic equipment at least free of charge. Member States shall ensure the availability and accessibility of the necessary collection facilities. Separate collection is the precondition to ensure specific treatment and recycling of waste electrical and

electronic equipment and is necessary to achieve the chosen level of protection of human health and the environment in the European Union. Consumers have to actively contribute to the success of such collection and the return of waste electrical and electronic equipment.

Presence of hazardous substances in electrical and electronic equipment results in potential effects on the environment and human health. The symbol consisting of the crossed-out wheeled bin indicates separate collection for waste electrical and electronic equipment.



Document Change History

| ver. | date | author | description |
|------|----------|--------|-------------------------------|
| 1.00 | 15.02.12 | AIK | Release. |
| 1.01 | 18.02.12 | AIK | Added links to download area. |
| 1.02 | 02.04.12 | FDR | Minor file properties update. |
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