Overview

This user manual shows how to work with the USSB 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 CypressConsole 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.
- Put “EEPROM” switch on module to “ON”.
- Click “Options → EZ-USB Interface”.

![Cypress USB Console](image)
<table>
<thead>
<tr>
<th>Press “Lg EEPROM” button.</th>
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<tbody>
<tr>
<td>Select iic file with required firmware version.</td>
</tr>
<tr>
<td>Press “Open” to start writing to EEPROM.</td>
</tr>
<tr>
<td>Upgrade process is displayed in status window and is completed when “Download Successful” text is displayed</td>
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</table>

## 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

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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

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electronicequipment 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

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