DEWESoft Firmware Upgrade Tool

Introduction

⚠️ This software tool is now deprecated. Use Python OpenFUT Generation 2 instead.

If you need this instrument for legacy it can be downloade here.

The TE USB FX2 micromodule can be configured by means of a firmware-upgrade (FWU) file.

The first step in generating the FWU file is to generate the fpga.bin file corresponding to a given FPGA design.

FWU file generation

In order to generate the FWU file you shall

1. generate a bit-stream file from your Xilinx EDK design;
2. generate a fpga.bin PROM file from the bit-stream file (it is the same procedure of the link before with only two difference: select BIN (swap bits ON) from the drop-down menu "file format" in the "flash/PROM file property" sub-panel and any other name than fpga for the "output file name" input field is not allowed)
3. generate a FWU file from the PROM file.

FWU file from the PROM file

Once you have got your fpga.bin PROM file, you can proceed and generate your FWU (= FirmWare Upgrade) file. The FWU file is a ZIP archive containing 3 files:

- Bootload.ini – TE USB FX2 module booting settings
- fpga.bin – FPGA configuration PROM file
- usb.bin – EZ-USB FX2LP USB microcontroller firmware

To create your FWU file, you shall

- replace the existing fpga.bin with the latest fpga.bin (once per design)
- zip the 3 files
- rename the zip file extension to fwu
- upload the file using DEWESoft Firmware Upgrade Tool.

⚠️ File and path names are given and must not be changed!

Bootload.ini file

The Bootload.ini file defines some module start-up options. Version 1.0 of Bootload.ini has the following structure:

- [Info] – information section (do not edit this section)

    - Version – Bootload.ini file format version
    - DeviceType – 3 stands for current device type
- [Settings]: settings section

    - FPGABitSwap – see Xilinx UG332: Spartan-3 Generation Configuration User Guide, chapter SelectMAP Data Ordering (default = 1 = do bit swapping)
    - FPGAPowerON – value of FX2_PS_EN after SPI Flash memory programming (FX2_PS_EN Slide Switch) (default = 1 = power on after upgrade)

usb.bin file

The usb.bin file contains the firmware to be written in the large EEPROM of the EZ-USB FX2LP USB microcontroller and loaded at module start-up to implement the DEWESoft instruction set.