TE0820 CPLD Firmware

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CPLD Access

Set B2B Pin JM1-89 (JTAGEN) to VDD (3.3V)

With TE0701:

- not possible on TE0701-01 up to TE0701-06

With TE0703 and TE0703 default CPLD firmware:

1. Connect MiniUSB cable to J4
2. Set DIP Switch S2-2 to OFF and S2-3 to ON position, see TE0703 CPLD - CC703S#CC703S-JTAG
3. Power ON the board
4. Run "Lattice Diamond Programmer"
5. Select "Create new project from JTAG chain" and press "OK"

With TE0705:

1. Connect MiniUSB cable to J7
2. Set DIP Switch S3-ENJTAG, S3-M1 and S3-M2 to ON position, see TE0705 CPLD#JTAG
3. Power ON the board
4. Run "Lattice Diamond Programmer"
5. Select "Create new project from JTAG chain" and press "OK"

With TE0706:

1. Connect MiniUSB cable to XMOD
2. Set DIP Switch S1-2 to OFF position, see TE0706 TRM#4-bitDIP-switch
3. Power ON the board
4. Run "Lattice Diamond Programmer"
5. Select "Create new project from JTAG chain" and press "OK"

Available CPLD Firmware

- TE0820 CPLD - Firmware description with different Variants for PCB REV03 and newer
  - QSPI / SD /JTAG /eMMC Boot Modi - Default delivered, QSPI or SD Boot Mode is selectable via Boot Mode Pin and carrier depended PGOOD Pin can be used to select JTAG or eMMC Boot
  - QSPI / JTAG Boot Modi - Use QSPI or JTAG Boot Mode is selectable via Boot Mode Pin
  - JTAG / SD Boot Modi - SD or JTAG Boot Mode is selectable via Boot Mode Pin
  - QSPI / SD Boot Modi, QSPI or SD Boot Mode is selectable via Boot Mode Pin
- TE0820-REV01_REV02 CPLD - Firmware description with different Variants
  - QSPI / SD Boot Modi - Default delivered, QSPI or SD Boot Mode is selectable (Special FSBL for QSPI Programming with Boot Mode /= JTAG will be provided for Vivado 2017.4 Reference Design and newer).

- QSPI / JTAG Boot Modi - Use QSPI or JTAG Boot Mode is selectable
- JTAG / SD Boot Modi - SD or JTAG Boot Mode is selectable
- JTAG / QSPI / SD Boot Modi - QSPI, SD or JTAG Boot Mode is selectable (CPLD Pin 23 (NOSEQ) is used as second Boot Mode pin to select JTAG Boot Mode). Attention: This need 7 Series 4x5 Carrier CPLD Firmware update.

Download

- TE0820/<PCB Revision>/Firmware/
  - Use files from the subfolders of your PCB revision

General instructions

CPLD Firmware Update - General Requirements

- Lattice Diamond or Lattice Diamond Programmer is available for free on http://www.latticesemi.com/
- Lattice compatible JTAG Programmer, for example:
  - Trenz TE0790 or Carrier with FTDI for JTAG
  - Most JTAG programmer, which used FTDI Chip to translate USB to JTAG
    - Digilent FTDI based programmer are not compatible with Lattice.
- JTAG must be connected to CPLD JTAG
- JTAG Enable Pin of CPLD must be selectable and set to VDD
- Correct CPLD Firmware (JED-File) from Trenz Electronic Download

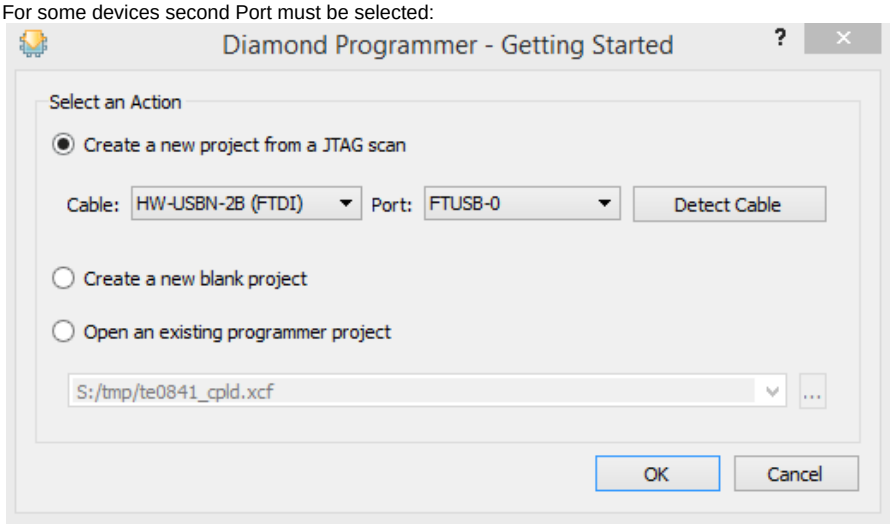
CPLD Firmware Update - General Procedure

Important:

- Connect only one JTAG device to host PC.
- Close all other JTAG programs, like Xilinx tools (on WinOS check hw_server.exe is terminated).

Procedure:

1. **Enable CPLD JTAG access** (See JTAG section on CPLD Firmware description)
2. Connect JTAG
3. Power on System
4. Open Lattice Diamond Programmer
5. Detect Cable and click "Ok"
   For some devices second Port must be selected:



6. Select Device (See CPLD Firmware overview description).
   In the most cases select the correct detected device one time (it's yellow at first on the menue)
7. Select correct Firmware from Download Area (JED File)
8. Program CPLD: 
9. **Disable CPLD JTAG access** (See JTAG section on CPLD Firmware description)
10. Restart System

More Information are available on the CPLD Firmware description and on the readme.txt included into the download zip.