Program EFM32 with Olimex ARM-JTAG-Coocox (CoLinkEx) with Keil MDK-ARM-Lite

I like Energymicro Microcontrollers and I found some cheap Olimex Boards with them. Then I searched a cheap debugger/programmer, I found the CoLinkEx or similar the Olimex ARM-JTAG-COOCOX.
And now I program some example for these EFM32 Olimex Boards.

For the EM-32G210F128-H Board with the EFM32G210F128 uC is an example with Keil MDK-ARM with Ulink2 and CoLinkEx available under 00_Blinky_Keil_EM-32G10F128-H.

For the EM-32G880F128-STK Board with the EFM32g880F128 uC is an example for Keil MDK-ARM with J-Link and CoLinkEx available. There is also an example with EmBlocks and J-Link. You can find these examples under 01_LCD_Example_EM-32G880F128-STK.

There is also a Basic Example for EM-32G880F128-STK (just for Debug, it doesn't do anything visual) for CoIDE, but this example is based on emlib 1.3.0 which is an old version of emlib. You can find this example under 02_Basic_Example_EFM32G880F128-STK_CooCox_CoIDE

Version 0.6   28.07.2013
   -   add 02_LCD_Example_EM-32G880F128-STK, based on EFM32Gxxx_STK emlcd example from Energy Micro for EmBlocks and Keil MDK-ARM
   -   add J-Link to 02_Basic_Example_EFM32G880F128-STK_CooCox_CoIDE (still emlib 1.3.0)

Version 0.5   29.06.2013
   -   add example for EFM32G880F128-STK with Keil MDK-ARM and emlib 3.20.0
       in folder 01_Basic_Example_EFM32G880F128-STK_Keil_MDK_ARM
   -   add example for EFM32G880F128-STK with CooCox CoIDE and emlib 1.3.0
       in folder 02_Basic_Example_EFM32G880F128-STK_CoIDE

Version 0.4   19.05.2013
   -   Update emlib and EFM32G to new version 3.20.0
Version 0.3   27.03.2013
   -   Add some Information about how to flash with CoLinkEx CoFlash Command Line
Version 0.2   06.02.2013
   -   axf to bin convert is not necessary
   -   add Ulink2 to Project, you can now switch between CoLinkEx and Ulink2
   -   correct comments
Version 0.1   05.02.2013
   -   Initial Version with one Blinky Example for EM-32G10F128 in "00_Blinky_Keil_EM-32G10F128-H"

Hardware:
   -   Olimex ARM-JTAG-Coocox (this is similar to the CoLinkEx)
       https://www.olimex.com/Products/ARM/JTAG/ARM-JTAG-COOCOX/

       One of the following Olimex Energy Micro Boards:
   -   EM-32G10F128-H
        https://www.olimex.com/Products/ARM/EnergyMicro/EM-32G210F128-H/

   -   EM-32G880F128-STK
       https://www.olimex.com/Products/ARM/EnergyMicro/EM-32G880F128-STK/

Software:
   -   Keil MDK-ARM v 4.72.a Lite (Free Version)
       https://www.keil.com/demo/eval/arm.htm

   -   CoLinkEx USB Driver Version 1.2.1:
       https://www.olimex.com/Products/ARM/JTAG/ARM-JTAG-COOCOX/resources/ColinkExUsbDriver-1.2.1.exe
       or

http://www.coocox.org/Colinkex.htm (login required)

- CoMDKPlugin:
  http://www.coocox.org/CoLinkGuide/CoMDKPlugin.html (login required)
- Eventually it's helpful if you could test your CoLinkEx with the CoFlash, if it doesn't work in Keil MDK-ARM
  http://coocox.org/CoFlash_Programmer.htm

  CooCox CoIDE:
  http://coocox.com/CooCox_CoIDE.htm

  EmBlocks:
  http://www.emblocks.org/web/downloads-main

  J-Link:
  http://www.segger.com/jlink-software.html?step=1&file=JLink_474a

Documents:
- CoLinkEx User Manual:
  http://www.coocox.org/downloadfile/Colink/CoLinkEx_User_Manual.pdf

- Olimex ARM-JTAG-Coocox Schematic:
  https://www.olimex.com/Products/ARM/JTAG/ARM-JTAG-COOCOX/resources/ARM-JTAG-COOCOX_schematic.pdf

- How to use CoLinkEx MDK-ARM Plugin:
  http://www.coocox.org/CoLinkGuide/Use-in-MDK.htm

- CoLinkEx Command Line: http://coocox.org/CoFlashGuide/CoFlash_UserGuide_Commandline.htm

Board Documents:
  Olimex EM-32G210F128-H Board:
  https://www.olimex.com/Products/ARM/EnergyMicro/EM-32G210F128-H/

  Olimex EM-32G880F128-H Board:
  https://www.olimex.com/Products/ARM/EnergyMicro/EM-32G880F128-H/

  Olimex EM-32G880F128-STK Board:
  https://www.olimex.com/Products/ARM/EnergyMicro/EM-32G880F128-STK/

Microcontroller Datasheet:

I recommend you to download Simplicity Studio, there you could find all these Datasheets and a lot more.
http://cdn.energymicro.com/dl/zip/Simplicity_Studio_Setup.exe

Download Datasheets:

- EFM32 Cortex M3 Reference Manual:
  http://cdn.energymicro.com/dl/devices/pdf/d0002_efm32_cortex-m3_reference_manual.pdf

- EFM32 Gecko Referenz Manual:
  http://cdn.energymicro.com/dl/devices/pdf/d0001_efm32g_reference_manual.pdf

- EFM32 Gecko EFM32G210xxxx Datasheet:
  http://cdn.energymicro.com/dl/devices/pdf/d0004_efm32g210_datasheet.pdf

- EFM32 Gecko EFM32G880xxxx Datasheet:
  http://cdn.energymicro.com/dl/devices/pdf/d0009_efm32g880_datasheet.pdf

Program without CoLinkEx Plugin, use Command Line CoFlash:

You have to download and install the CoFlash: http://coocox.org/CoFlash_Programmer.htm

To use the Command Line CoFlash you have to put the following commands into "Options for Targets/User/Run User Program After Build/Run#1"

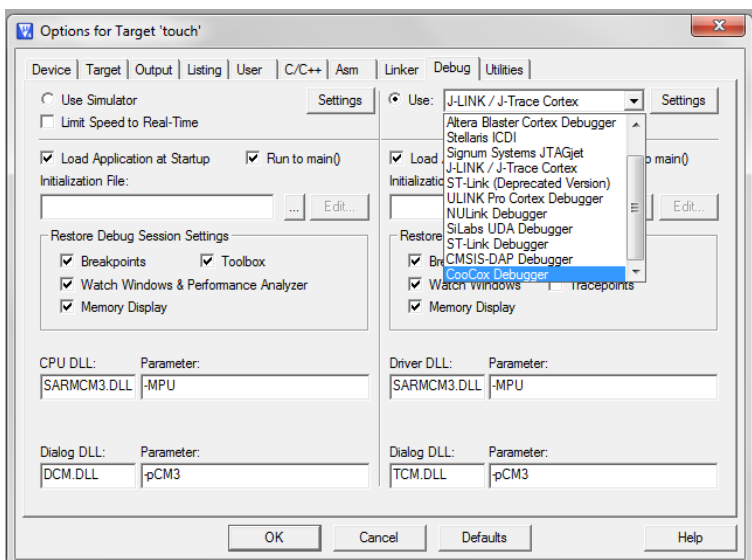-"fromelf --bin --output .\Flash\Blinky.bin .\Flash\Blinky.axf"

-this converts your .axf File into a .bin.

Then Select under Target Options/ Utilities/ Use External Tool for Flash Programming
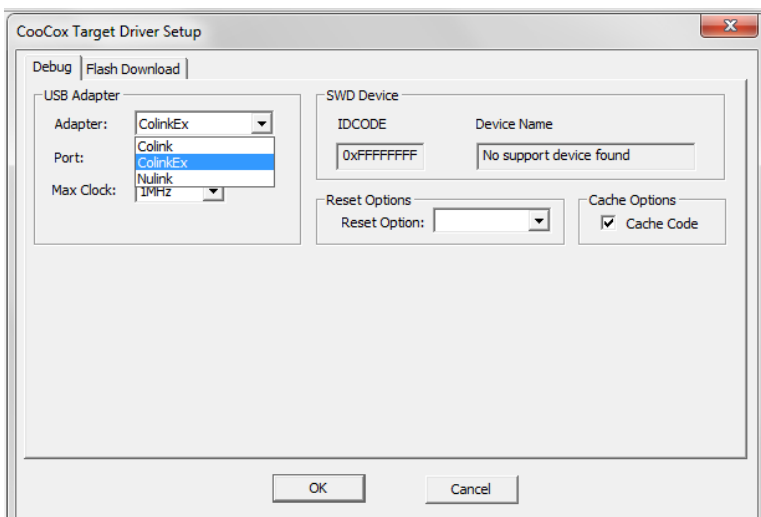- Under Command you select the Coflash Exe (C:\Program Files (x86)\CooCox\CoFlash\coflash.exe)
- Arguments: write the commands, look here
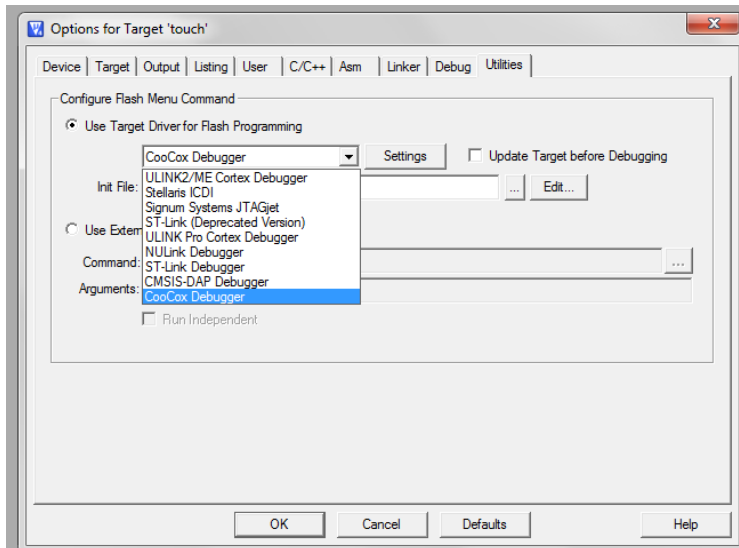 http://coocox.org/CoFlashGuide/CoFlash_UserGuide_Commandline.htm

To do:
1. Install Keil MDK-ARM (look also Video)
2. Install CoLinkEx USB Driver
3. Install CoMDKPlugin
4. Restart Keil MDK-ARM
5. Now you could find under Debug -> Use of the configuration dialog selects "CooCox Debugger".

6. Click Settings, select "Colink or ColinkEx" as the Adapter, click on FlashDownload and Set Alogorithm, select the correct uC Typ (different Flash Memory)

7. Then, if you debug your program in flash, you also have to configure Utilities by selecting "CooCox Debugger" for Flash Programming.

8. Debug your project.