

## **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.

- 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 CoCoX 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, Sorry for wrong information
  - 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-H  
<https://www.olimex.com/Products/ARM/EnergyMicro/EM-32G880F128-H/>
- EM-32G880F128-STK  
<https://www.olimex.com/Products/ARM/EnergyMicro/EM-32G880F128-STK/>

### Software:

- Keil MDK-ARM v 4.72 Lite (Free Version)  
<https://www.keil.com/demo/eval/arm.htm>  
Please look also the installation Video for MDK-ARM (Subtitles Available)  
<https://www.youtube.com/watch?v=RXOOxy5nns&list=PL6-W3FoUyb48WFI5PQv3SDJj2G1t2FonV&index=1>
- 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](http://coocox.org/CoFlash_Programmer.htm)

CoCoX CoIDE:

[http://coocox.com/CoCoX\\_CoIDE.htm](http://coocox.com/CoCoX_CoIDE.htm)

#### Documents:

- CoLinkEx User Manual:  
[http://www.coocox.org/downloadfile/Colink/CoLinkEx\\_User\\_Manual.pdf](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](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](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](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](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](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](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](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](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"

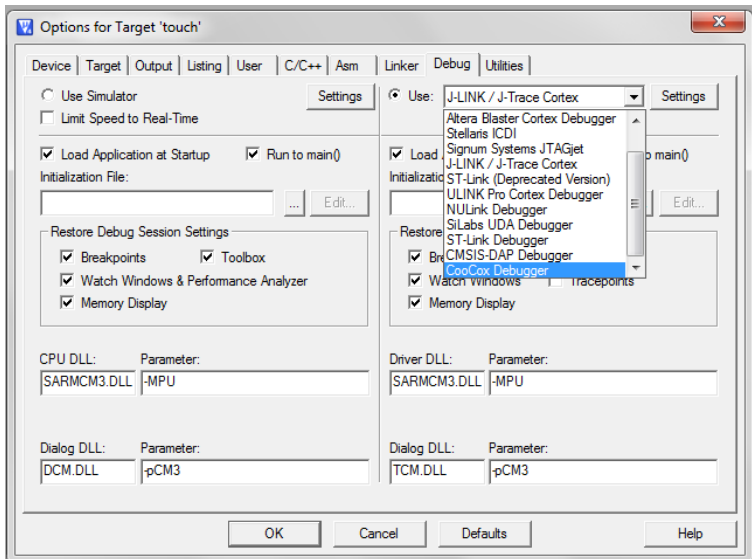
-this converts your .axf File into a .bin.

Then Select under Target Options/ Utilities/ Use External Tool for Flash Programming

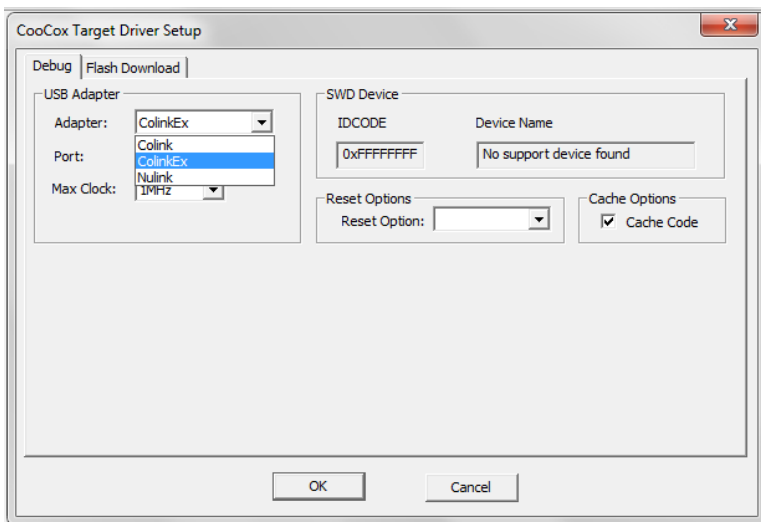
- Under Command you select the Coflash Exe (C:\Program Files (x86)\CooCox\CoFlash\coflash.exe)
- Arguments: write the commands, look here  
[http://coocox.org/CoFlashGuide/CoFlash\\_UserGuide\\_Commandline.htm](http://coocox.org/CoFlashGuide/CoFlash_UserGuide_Commandline.htm)

To do:

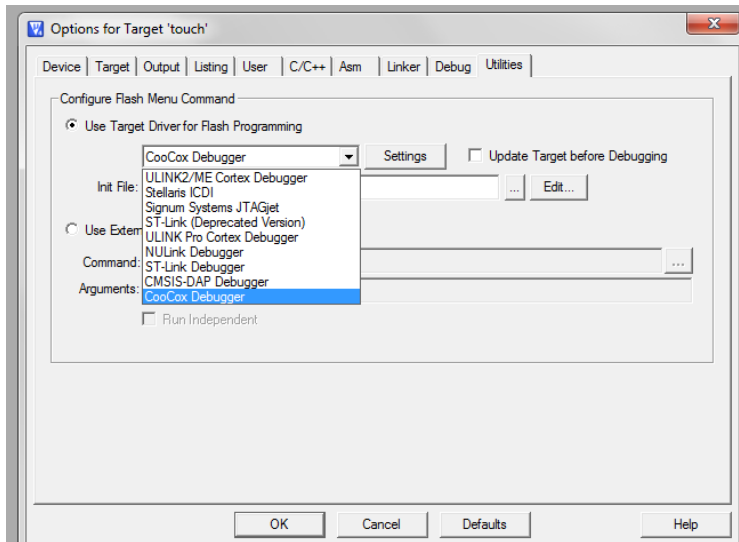
1. Install Keil MDK-ARM (look also Video)
2. Install CoLinkEx USB Driver
3. Install CoMDKPlugin
4. Restart Keil MDK-ARM
5. Now you could find under Debug -> Use of the configuration dialog selects "CooCox Debugger".



6. Click Settings, select "Colink or ColinkEx" as the Adapter, click on FlashDownload and Set Algorithm, 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.