Note on how to install OpenBLP bootloader for

OLIMEX's

EM32G880F128-STK STM32-H103 STM32-P103 LPC-L2294 A friend of Olimex provides and supports a pretty nice bootloader released under GNU GPL altogether with a neat and tidy Wiki. The main page of this project is:

http://feaser.com/openblt/doku.php

There is a lot of info about the features of the project but I want to specifically point how well everything is organized and documented.

If you look the examples page there are a number of Olimex boards also supported:

http://feaser.com/openblt/doku.php?id=manual:demos

Further more, there are very good guides on making everything work together using different ways of downloading the code on those boards.

Having bootloader on EM32G880F128-STK is real treat, because that way a person doesn't need an expensive SWD debugger for the board. That being said the installation of the OpenBLT on the other boards doesn't differ much from the one I will present.

Below you will find the installation of OpenBLT on EM32G880F128-STK using OLIMEX ARM-USB-OCD combined with ARM-JTAG-SWD. The IDE I will be using is Rowley's Crossworks for ARM which supports our SWD interface out of the box.

1) First step is to install the Crossworks IDE and the driver for the ARM debugger. We also mount the SWD adapter between the debugger and the cable it is shipped with.

2) Open Crosswork IDE and make sure you right-click install the Energy Micro EFM32 support package. And also that you have selected ARM-USB-OCD.

🗶 Package Manager						<u> </u>		
Select Packages								
Search Packages						-		
		Version	Туре		Status	Action		
Embedded Artists LPC3131 OEM Board Support Package		2.1	Board Support Package		Not Installed	No Action		
Embedded Artists LPC3141 OEM Board Support Package		2.0	Board Support Package		Not Installed	No Action		
Embedded Artists LPC3152 OEM Board Support Package		2.0	Board Support Package		Not Installed	No Action		
Embedded Artists LPC3250 OEM Board Support Package		2.1	Board Support Package		Not Installed	No Action 💻		
Embest LPCEB2000-A Board Support Package		1.2	Board Supp	oort Package	Not Installed	No Action		
Embest LPCEB2000-B Board Support Package		1.3	Board Support Package		Not Installed	No Action		
Embest LPCEB2000-S Board Support Package		1.2	Board Supp	oort Package	Not Installed	No Action		
Embest SAM9260V1 Board Support Package		2.0	Board Supp	oort Package	Not Installed	No Action		
Energy Micro EFM32 CPU Support Package		1.6	CPU Su	1		No Action		
Energy Micro EFM32 Gecko DK Board Support Package		1.1	Board	Install Select	ed Packages	No Action		
Energy Micro EFM32 Gecko Starter Kit Board Support Packa	ge	1.0	Board	Select All Pac	kages	No Action		
Energy Micro EFM32 Tiny Gecko Starter Kit Board Support P	ackage	1.0	Board	Defeate Desire as List		No Action		
Energy Micro EFM32GG-DK3750 Board Support Package		1.0	Board	Refresh Pack	age List	No Action		
Energy Micro EFM32LG-DK3650 Board Support Package		1.0	Board Manual Install		No Action			
Freescale i.MX LiteKit Board Support Package		1.3	Board Supp	on rackage	NUC Instancu	No Action		
Package Information						^		
Description	This package contain	ns project t	emplates and	l system files fo	or the Energy Mi	cro EFM32.		
Latest Version	1.6							
Author	Rowley Associates Lt	d						
Supported Targets								
EFM32G								
EFM32G200F16, EFM32G200F32, EFM32G200F64, EFM32G210F128, EFM32G222F128, EFM32G222F32, EFM32G222F4, EFM32G230F128, EFM32G230F32, EFM32G230F128, EFM32G230F32, EFM32G20F44, EFM32G230F54, EFM32G20F128, EFM32G20F128, EFM32G20F64, EFM32G20F128, E								
						Cancel		

3) Download the latest OpenBLT from <u>http://sourceforge.net/projects/openblt/</u> and then extract it. 4) Open \Target\Demo\ARMCM3_EFM32_Olimex_EM32G880F128STK_Crossworks**Boot\ide**\ folder and locate the project file and open it. Clean and rebuild the project

5) Upload it to the board using the debugger with the SWD adapter.

6) Start the Microboot utility (found in \Host\MicroBoot.exe" needs to be configured to connect to the correct COM-port and to communication at the correct baudrate- click the "Settings"-button and select "OpenBLT using UART" from the dropdown menu. Click the "Options"-button to configure the communication parameters. Select the PC's COM-port that the board is connected to. Set the baudrate to 9600 bits/sec from the Device manager.

Micro	Boot v1.00	23
MicroB	Interface Settings	
for Op	Select Target Interface	
Select	OpenBLT using UART (v1.00.00)	e
	OpenBLT using UART (v1.00.00) OpenBLT using USB (v1.00.00)	
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7) Once you saved the settings by clicking the "OK"-button twice, you can close Microboot by clicking the "Cancel"-button on the main screen. Microboot is now ready for action!

Now it is time to check how the bootloader works

8) We open, clean and rebuild the project file found in: \Target\Demo\ARMCM3_EFM32_Olimex_EM32G880F128STK_Crossworks**Prog\ide**\

9) The output file can be found in

Target\Demo\ARMCM3_EFM32_Olimex_EM32G880F128STK_Crossworks**Prog\bin**\demoprog _olimex_efm32g880.srec

To download this demoprog_olimex_efm32g880.srec file to the remaining flash memory using the bootloader, start theMicroboot program and click the "Browse"-button. Browse to the "\Target\Demo\ARMCM3_EFM32_Olimex_EM32G880F128STK_Crossworks\Prog\bin\" directory and select thedemoprog_olimex_efm32g880.srec file to start the download.

HicroBoot v1.00 - Downloading demoprog_olimex_efm32g880.srec				
MicroBoot		a		
for OpenBLT using UART		00000		
Programming data (1,8 of 10,8 Kbytes)	•			
Elapsed time: 00:03	Settings	Cancel		

Once the download completed, the newly programmed software will be started by the bootloader. You can verify this by checking that the test "Olimex" blinks on the LCD. Congratulations! That's all you have to do to use the bootloader.

If you like the idea of the OpenBLP you can check on how to help the project: <u>http://feaser.com/openblt/doku.php?id=contributions</u>

Remember to follow the guides provided here in case you want to use GCC or IAR, or if you want to download a bootloader using STM32H103, STM32P103 or LPC-L2294: <u>http://feaser.com/openblt/doku.php?id=manual:demos</u>