FRDM-KL46Z_OS3

Download Link	Micrium_FRDM-KL46Z_OS3.zip

FRDM-KL46Z Example Project

MCU			
Manufacturer	**Family**	**Part Name**	**Architecture**
Freescale	Kinetis L	MKL46Z256VLL4	ARM_Cortex_M0

PROJECT INSTRUCTIONS

PRODUCTS AND VERSION REFERENCE

TOOLCHAIN IDEs	
IDE Name	**Version**
IAR EW for ARM	7.10
Keil uVision	4.72
MICRIUM	
Micrium Product	**Version**
uC/CPU	1.29.02
uC/LIB	1.38.01
uC/OS-III	3.04.02

LOADING & RUNNING THE PROJECT ON THE BOARD

> ⊘ **[WARNING]:** Make sure to open the project using the mentioned IDE(s) version or later.

IAR Embedded Workbench™

1. Click on **File-->Open-->Workspace...**
2. Navigate to the directory where the workspace is located:
   $\Micrium\Examples\Freescale\FRDM-KL46Z\OS3\IAR\Micrium_FRDM-KL46Z_OS3.eww
3. Click **Open**.
4. For Safety, clean the project by clicking on **Project-->Clean**. (If Available)
5. Compile the Project by clicking on **Project-->Make**.
6. Have the board connected via OpenSDA into the board input (SDA) **before** downloading the project to the board.
   a. Power is provided through the OpenSDA connection.
7. Download the project to the board by clicking on **Project-->Download and Debug.**
8. Run the project by clicking **Debug-->Go**. To stop the project from running click **Debug-->Stop Debugging.**

Keil uVision4™

1. Click on **Project-->Open Project...**
2. Navigate to the directory where the workspace is located:
   $Micrium\Examples\Freescale\FRDM-KL46Z\OS3\KeilMDK\Micrium_FRDM-KL46Z_OS3.uvproj
3. Click **Open**.
4. For Safety, clean the project by clicking on **Project-->Clean Target**. (If Available)
5. Compile the Project by clicking on **Project-->Build Target**.
6. Have the board connected via OpenSDA into the board input (SDA) **before** downloading the project to the board.
   a. Power is provided through the OpenSDA connection.
7. Download the project to the board by clicking on **Debug-->Start/Stop Debug Session**.
8. Run the project by clicking **Debug-->Run**. To stop the project from running click **Debug-->Start/Stop Debug Session** again.

µC/Probe

µC/Probe, a Micriµm Windows™ application to graphically view the internals of any embedded system, included in any Micriµm example project will also include a pre-configured µC/Probe workspace found in the following folder directory:

- *$Micrium\Examples\Freescale\FRDM-KL46Z\OS3\<IDE>\Micrium_FRDM-KL46Z_OS3.wspx*

⚠ Please compile the project prior to opening a pre-configured µC/Probe workspace. Refer to the **LOADING & RUNNING THE PROJECT ON THE BOARD** section of this document for further details.

If opening Micriµm's µC/Probe Windows™ application and creating a new µC/Probe workspace, the user must configure µC/Probe with the proper communication protocol used in his/her project. There are <u>four</u> ways to communicate with Micriµm's µC/Probe:

- Through a J-Link debugger
- Through a TCP/IP connection
- Through an RS-232 connection
- Through a USB connection

ⓘ The image below shows where the **Settings** (highlighted in RED) button is found to configure µC/Probe's settings. Please note that this README file will only show which connections are possible/configured with the FRDM-KL46Z.

µC/Probe also requires the use of an **ELF File** from the IDEs compiler to obtain the variables to display. Search for your project's <u>ELF File</u>, which can usually be found under the following folder directory:

- *$Micrium\Examples\Freescale\FRDM-KL46Z\OS3\<IDE>\FLASH*

ⓘ The image below shows where the **ELF File** (highlighted in RED) button is found to search for the project's ELF File.
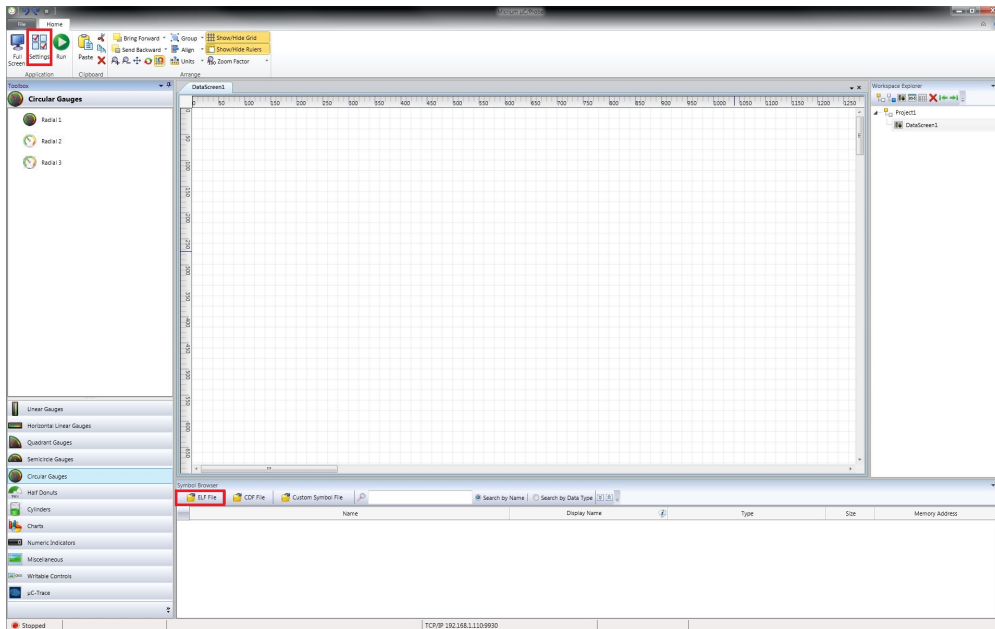
Once the proper μC/Probe settings have been configured, and the project is running on the Target Board, the user may start to configure his workspace. Once the workspace has been completed, press the **"RUN"** button to the right of the settings to initialize the connection and transfer of variables between μC/Probe and the Target Board.

Each of the ways to communicate with μC/Probe is explained below.

Running with CMSIS-DAP
When running a Micriμm example project that is using a CMSIS-DAP connection to interface with μC/Probe, μC/Probe must be configured with the same settings found in the Target Board.

In μC/Probe's settings, under the **Communication** tab, select **"CMSIS-DAP"** under the **Debug Interfaces** section and configure the JTAG/S W Adapter, Port, and Max Clock for your project; if desired, SWJ can be enabled by clicking the checkbox.

Along with the **"CMSIS-DAP"** settings, μC/Probe allows you to change the Endianness of the device, how to receive the Statistics, and the rate at which μC/Probe does it's Data Collection.

- The following image is an example of how it should look.

Micrium μC/Probe

μC/Probe Settings

Communication

General

Endianness
- ◉ Little Endian
- ○ Big Endian

Statistics
- ○ symbols/sec
- ◉ bytes/sec

Data Collection

Slowest   Fastest

Interfaces   [Refresh]

None
- ☁ Cloud Only

Target Resident Code
- TCP/IP
- RS-232
- USB

Debug Interfaces
- J-Link
- CMSIS-DAP
- Cypress PSoC Prog

Settings

JTAG/SW Adapter	OpenSDA CMSIS-DAP ▾
Serial No	A000000001
Firmware Version	1.0
SWJ	☐
Port	SW ▾
Max Clock	1 MHz ▾

[OK]   [Cancel]