EXAMPLE NAME: ADC_MEASUREMENT_EXAMPLE_XMC45

OVERVIEW: This example demonstrates how use the ADC_MEASUREMENT APP to measure 2 signals using the background source of the ADC in XMC4500.

DESCRIPTION:

- ADC_MEASUREMENT APP is configured to convert 2 ADC channels. The APP makes usage of the background source for requesting those channels conversion.
- The measurements will be triggered in "main.c" through an API (ADC_MEASUREMENT_StartConversion). Both conversions will be executed immediately, one after the other.
- An interrupt is generated every time that both conversions are finished successfully. This is done through activation of end of measurement interrupt (background source event). In this interrupt, it is requested again to convert the same sequence (both channels)

REQUIRMENTS:

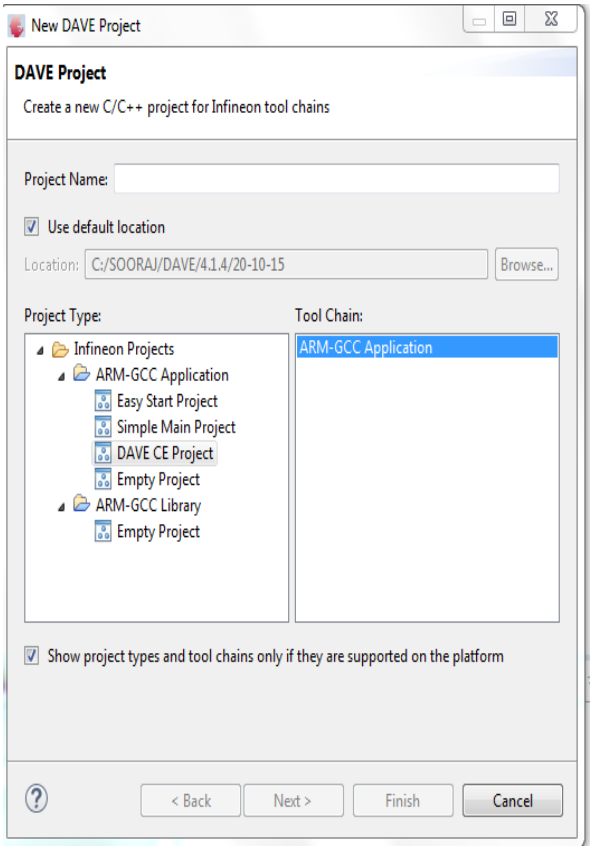
Boards Required: XMC4500 CPU Board (Order Nr: KIT_XMC45_EE1_002) DAVE

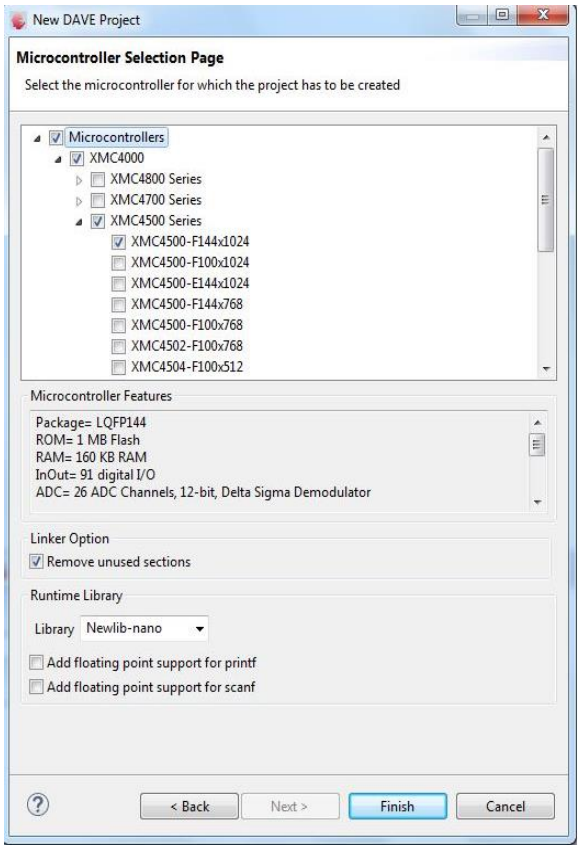
HOW TO CREATE THE PROJECT:

1. Open the DAVE CE and use "Add IDE New Project Wizard" on the toolbar to add a new DAVE Project.

Enter Project Name
Select Project Type "DAVE CE Project"

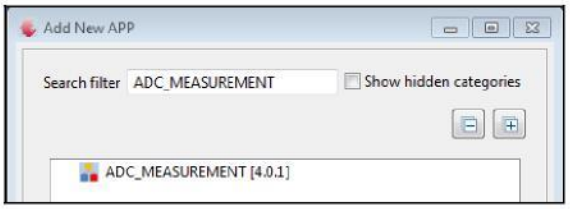
Select Microcontroller
XMC4500 Series XMC4500-F144X1024

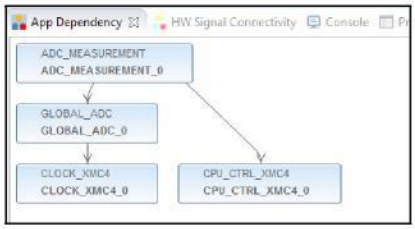




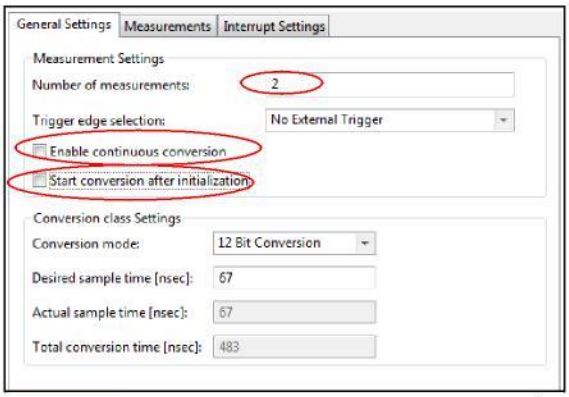
2. Use the "Add New App" in the toolbar to add 1 instance of ADC_MEASUREMENT APP. Configure the APP instances with the following configurations.

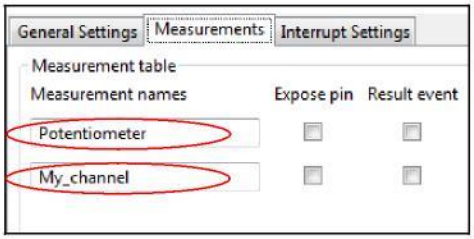
Views: App Dependency Tree and App Dependency

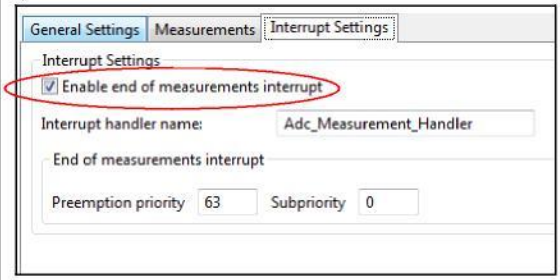




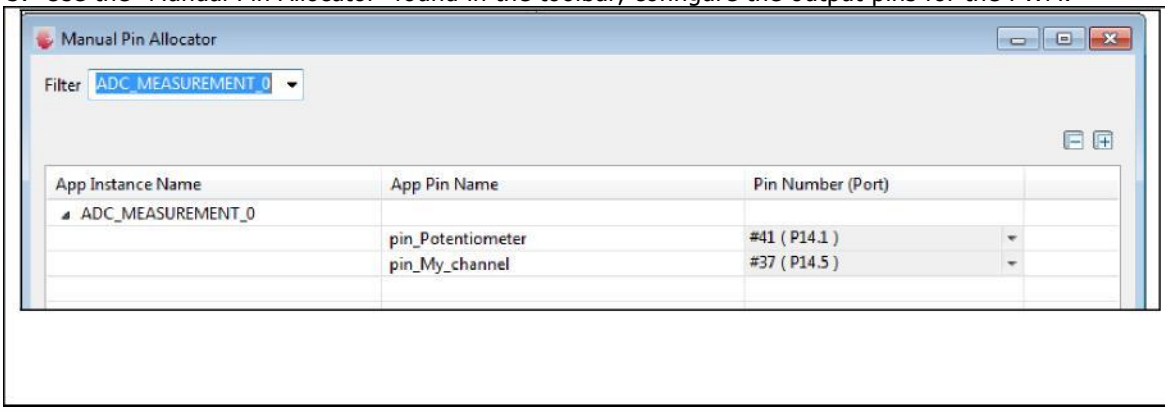
ADC_MEASUREMENT_0:







3. Use the "Manual Pin Allocator" found in the toolbar, configure the output pins for the PWM.



4. Generate the code for configurations made and change main.c accordingly, to define the Adc_Measurement_Handler. There the read of the results and the re-trigger of the conversions are executed.
5. Build and download to the microcontroller.

HOW TO TEST:
Download and run the demo in the uC.

OBSERVATIONS:
- Run the code and set a breakpoint in the debugger inside of the Adc_Measurement_Handler function. The results are updated every time that the code reaches the breakpoint. Turn the on board potentiometer in XMC4500 board to see how the value is measured correctly from 0 to 4095. User can press F8 in the keyboard to resume code and jump quickly to next value measured. The other channel can be connected to a fix reference.

HINTS WHEN MIGRATING EXAMPLE TO OTHER DEVICES IN THE SAME XMC FAMILY: -