EXAMPLE NAME: PDM_DIMMED_LED_LAMP_DIRECT_PDM_WHITE_EXAMPLE_XMC12

OVERVIEW: This example demonstrates how use the PDM_DIMMED_LED_LAMP APP to control a 4-channel LED lamp.

DESCRIPTION:

- PDM_DIMMED_LED_LAMP APP drives an LED lamp using 4 PDM_BCCU APP and a DIM_BCCU APP.
- SYSTIMER APP provides a periodic 1s interrupt for changing lamp brightness.

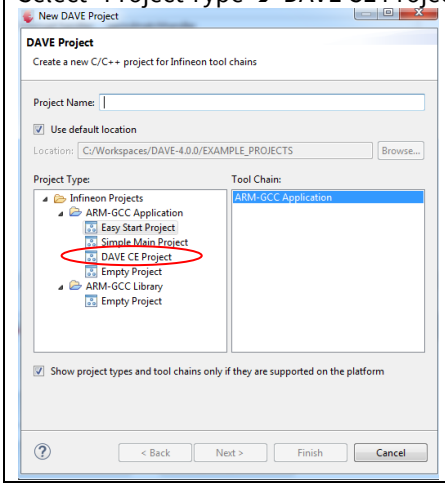
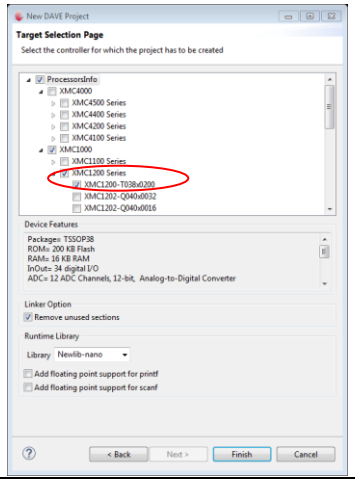
REQUIRMENTS:

Boards Required: XMC1200 CPU Board (Order Nr: KIT_XMC12_BOOT_001), White LED Card (Part of the LED Lighting Application Kit, Order Nr: KIT_XMC1X_AK_LED_001)

Additional Hardware: 24V DC Power Supply
DAVE Version: 4.1.4

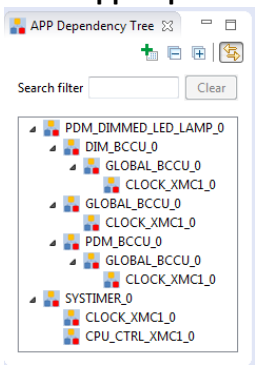
HOW TO CREATE THE PROJECT:

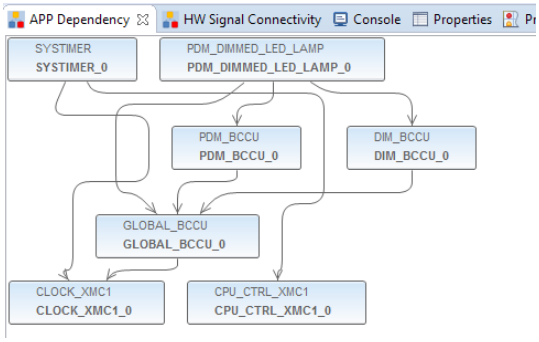
1. Open the DAVE CE and use  "Add IDE New Project Wizard" shortcut in the toolbar to add a new DAVE Project.

Enter Project Name Select "Project Type ➔ DAVE CE Project"	Select Processors Info ➔XMC1200 Series ➔ XMC1200-T038x0200
	

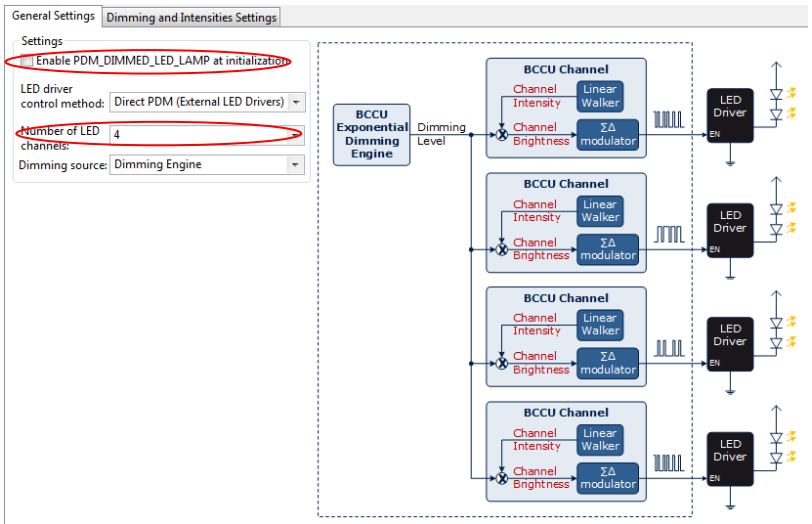
2. Use the  "Add New App" shortcut in the toolbar to add 1 instance of PDM_DIMMED_LED_LAMP and 1 instance of SYSTIMER APPs. Configure the App instances with the following configurations.

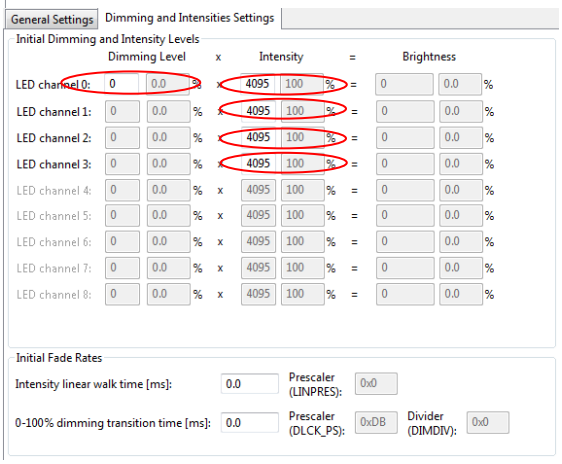
Views: App Dependency Tree and App Dependency



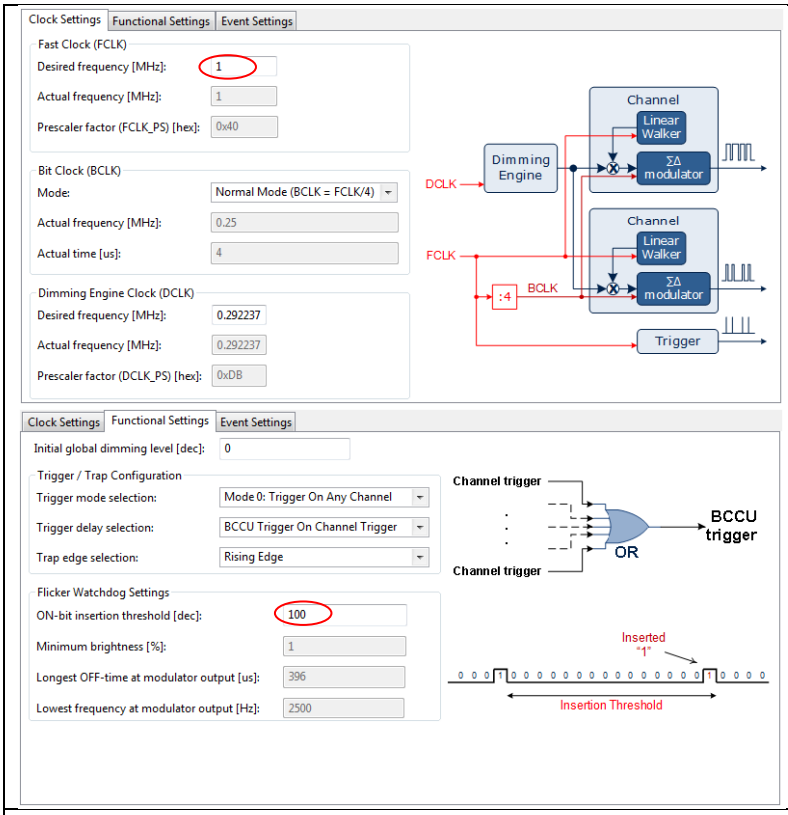


PDM_DIMMED_LED_LAMP_0:

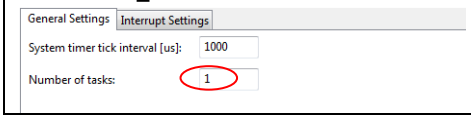




GLOBAL_BCCU_0:

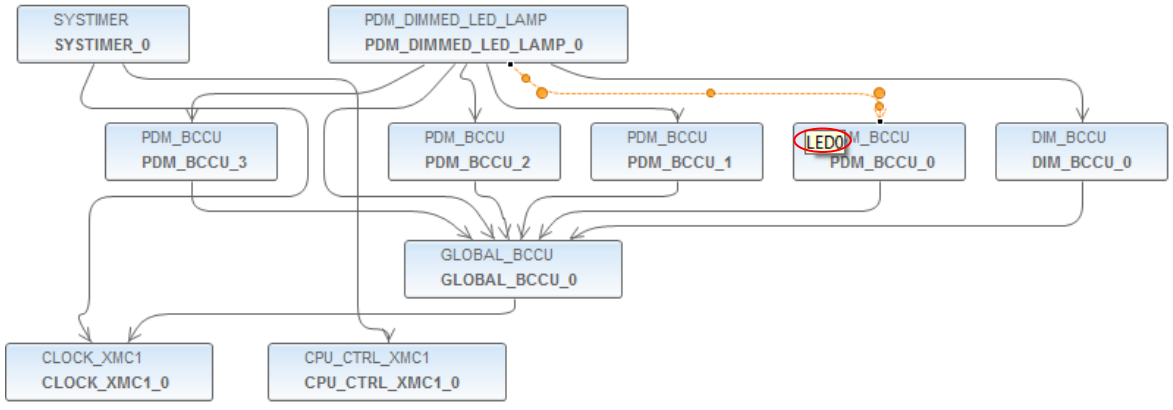


SYSTIMER_0:

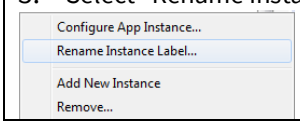


3. Rename the instance labels for PDM_BCCU APPs.

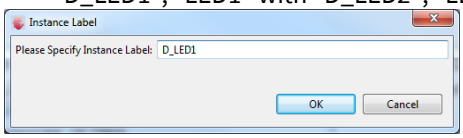
1. Hover your mouse cursor over the connecting arrow to a PDM_BCCU APP. A label will appear momentarily e.g. LED0.
2. Right-click the PDM_BCCU APP.



3. Select “Rename Instance Label”.

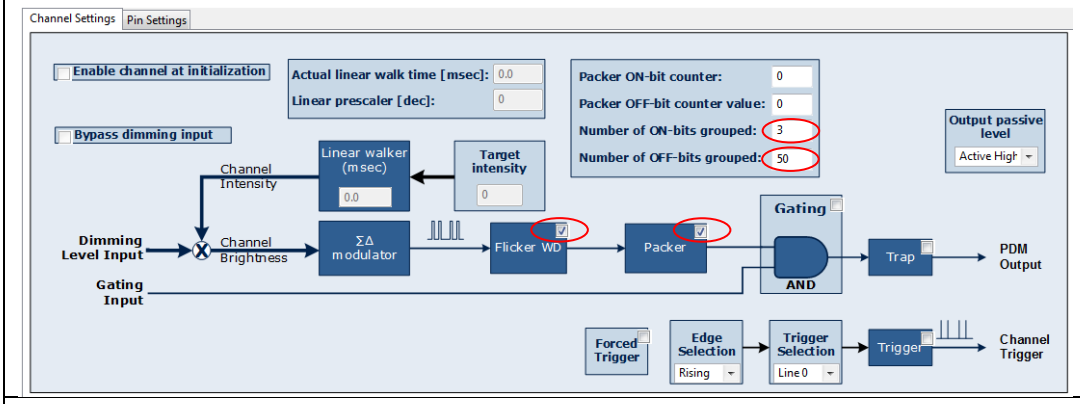


4. Type in new instance label. Repeat steps 1 to 4 for other PDM_BCCU APP instances. Replace “LED0” with “D_LED1”, “LED1” with “D_LED2”, “LED2” with “D_LED3” and “LED3” with “D_LED4”.

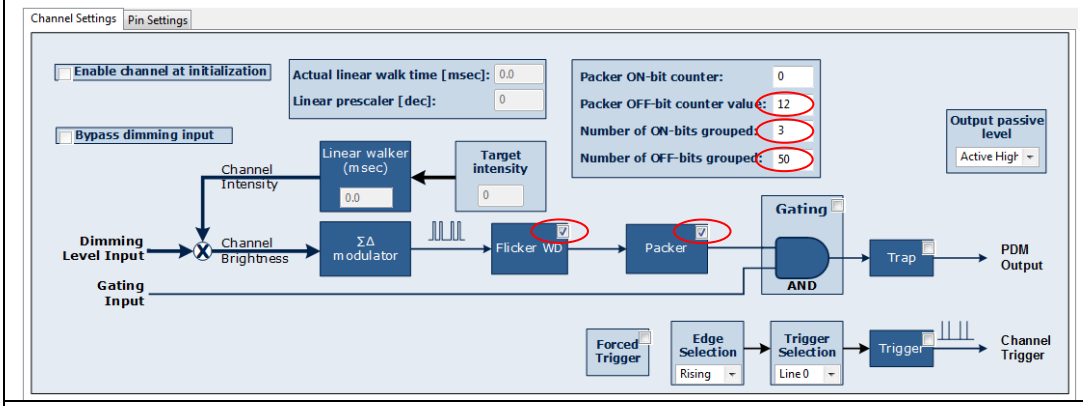


4. Configure the PDM_BCCU APPs with the following configurations.

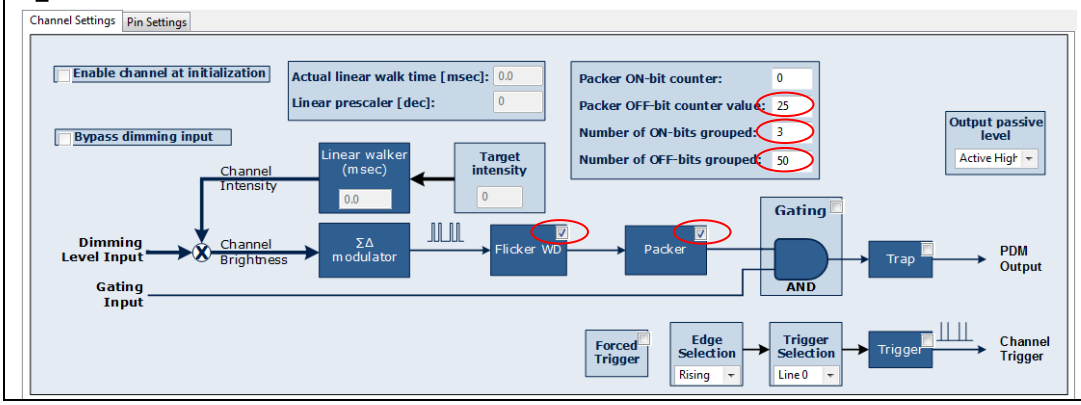
D_LED1:



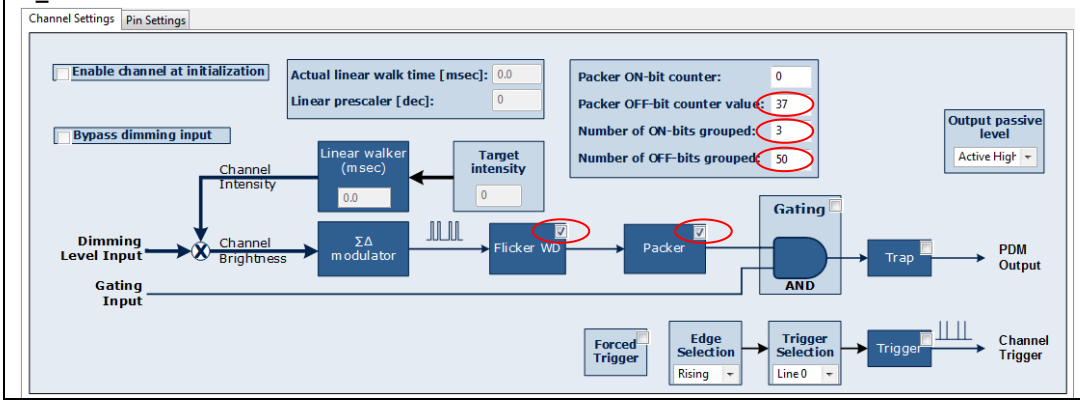
D_LED2:



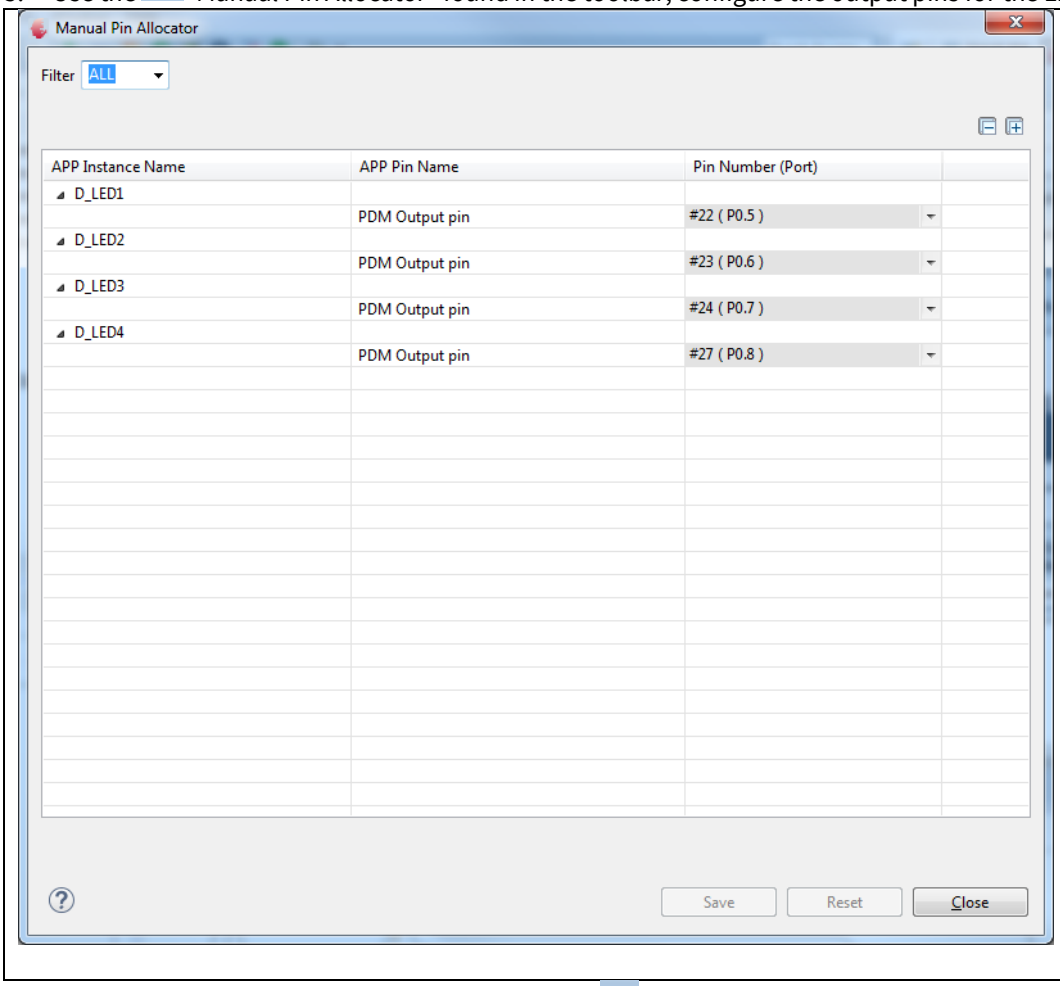
D_LED3:



D_LED4:



5. Use the  "Manual Pin Allocator" found in the toolbar, configure the output pins for the LED strings.



6. Generate the code for configurations made using  shortcut in the toolbar.
7. Change main.c accordingly.
    a. Enable lamp and set initial lamp color.
    b. Create periodic software timer using SYSTIMER API.
    c. Define interrupt handler for software timer i.e. change LED brightness
8. Build and download to the microcontroller using  shortcut in the toolbar.

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

OBSERVATIONS:
- Lamp starts with 100% brightness.
- Lamp dims down to 10% brightness.
- Lamp dims up to 100% brightness.
- Lamp dims down to 0% brightness (off).
- Sequence repeats itself.

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