**EXAMPLE NAME:** PWM_CCU4 _EXAMPLE_XMC45

**OVERVIEW:** This example demonstrates configuring external start and stop events of the connected slices to synchronously start and stop of connected CCU slices from the PWM_CCU4 APPs.

**DESCRIPTION:**

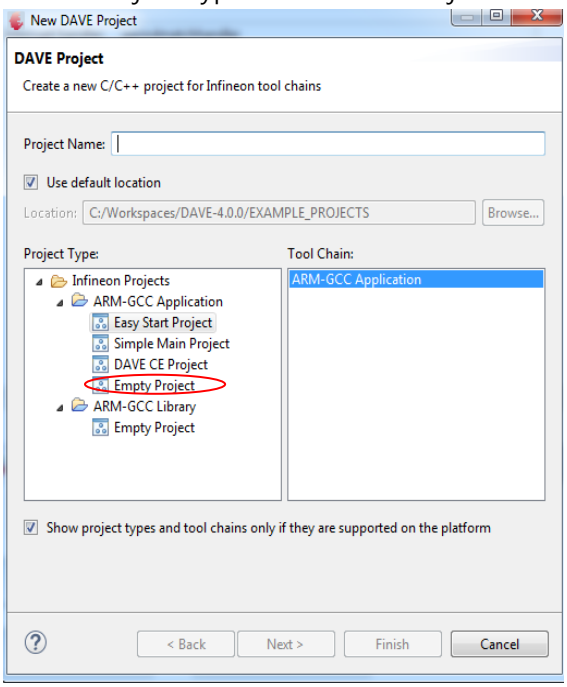
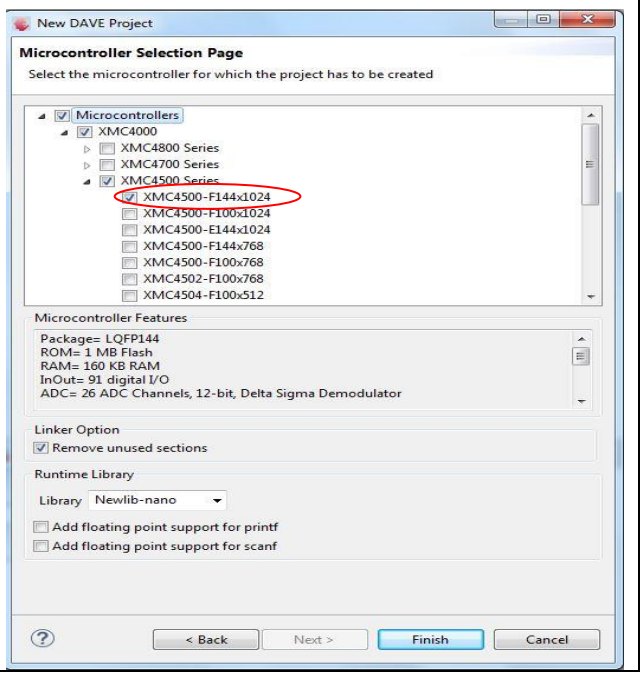
- PWM_CCU4 APP is connected with an external start event by a rising edge of the global start control signal and external stop event by a falling edge of the global start control signal. Additionally, 1 slice of the PWM_CCU4 is used to toggle LED connected at P3.9
- INTERRUPT APP is a used to interrupt for the compare match event and after 10 events detected, it will set a low level to the global start control signal to stop all the timers of the connected CCU4 slices.

**REQUIRMENTS:**

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

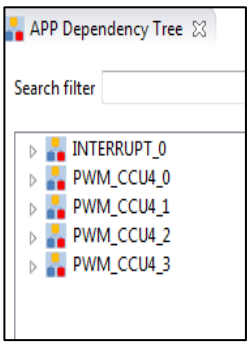
**HOW TO CREATE THE PROJECT:**

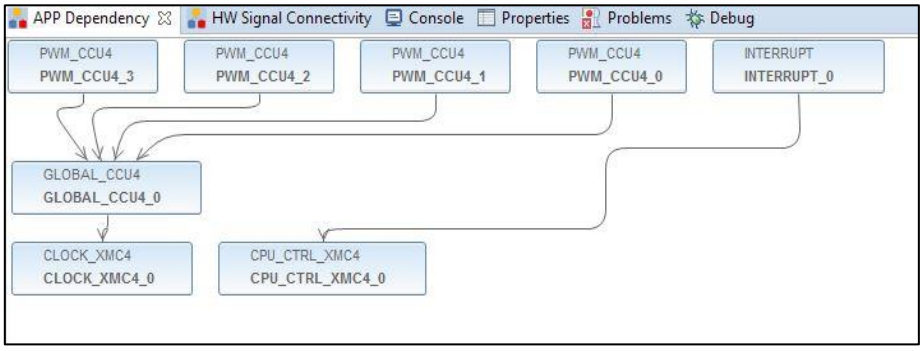
1. Open the DAVE CE and use  "Add IDE New Project Wizard" on the toolbar to add a new DAVE Project.

| Enter Project Name<br>Select "Project Type ➔ DAVE CE Project" | Select Microcontroller<br>➔XMC4500 Series ➔ XMC4500-F144X1024 |
|---|---|
|  |  |

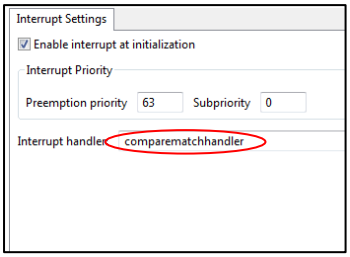
2. Use the  "Add New APP" in the toolbar to add APPs listed. Configure the APP instances with the following configurations.

**Views: APP Dependency Tree and APP Dependency**

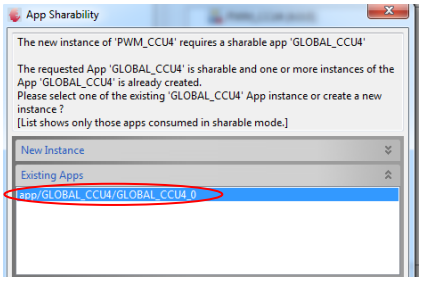



**INTERRUPT_0:**

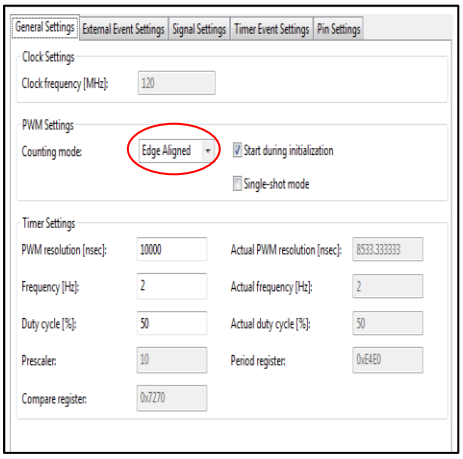


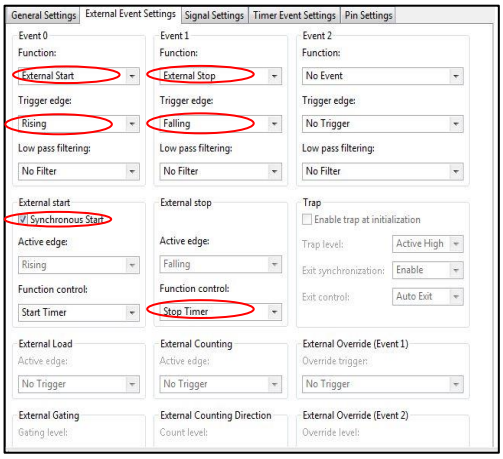

**PWM_CCU4:**



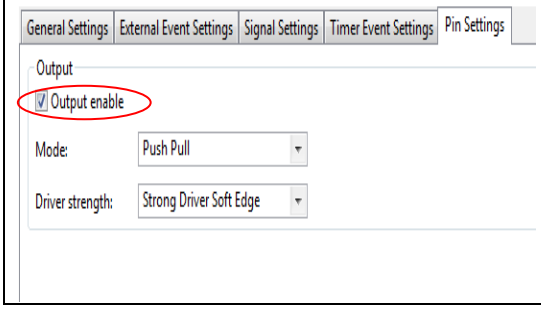

➔ All the 4 instances share the same CCU4 kernel.

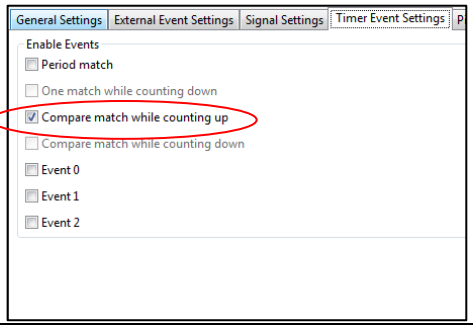
⇨ Instances PWM_CCU4_0 to PWM_CCU4_3 will take the settings in tabs: "General Settings" and External Event Settings. No change to other tabs



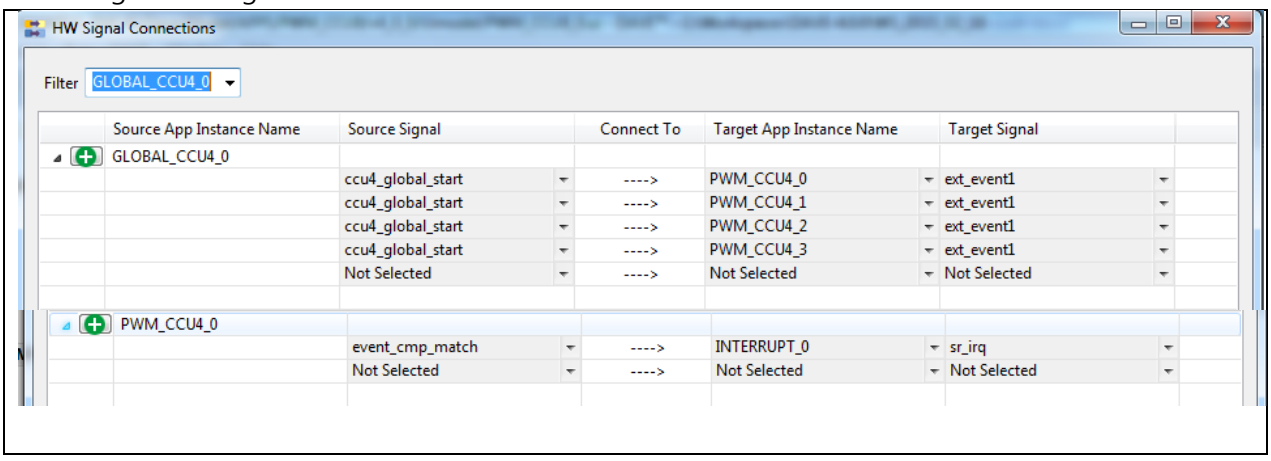




⇨ Instance PWM_CCU4_0: Adopt the following configuration for tabs: Timer Event Settings and Pin Settings

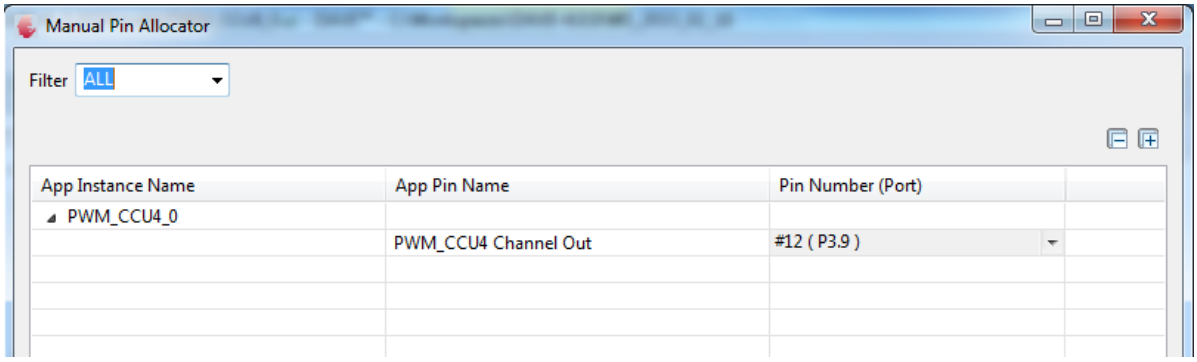



3. Use the  "Hardware Signal Connections" found at the bottom right of the APP UI window, to configure the signal connections.



4. Use the "Manual Pin Allocator" found in the toolbar, configure the output pin for the LED.




5. Generate the code for configurations made and change main.c accordingly.
6. Build and download to the microcontroller.

**HOW TO TEST:**

Download and run the demo in the uC.

**OBSERVATIONS:**

- LED toggles at 0.5 seconds interval for 10 times.
- On the 10$^{th}$ compare match event, a global start event is issued and the connected CCU4 and CCU8 timers are stopped.
- Timer values of the CCU4 slices are read into variable pwm_ccu4_timer[0]..[3]. It should observe the same timer value.

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

No additional information is required.