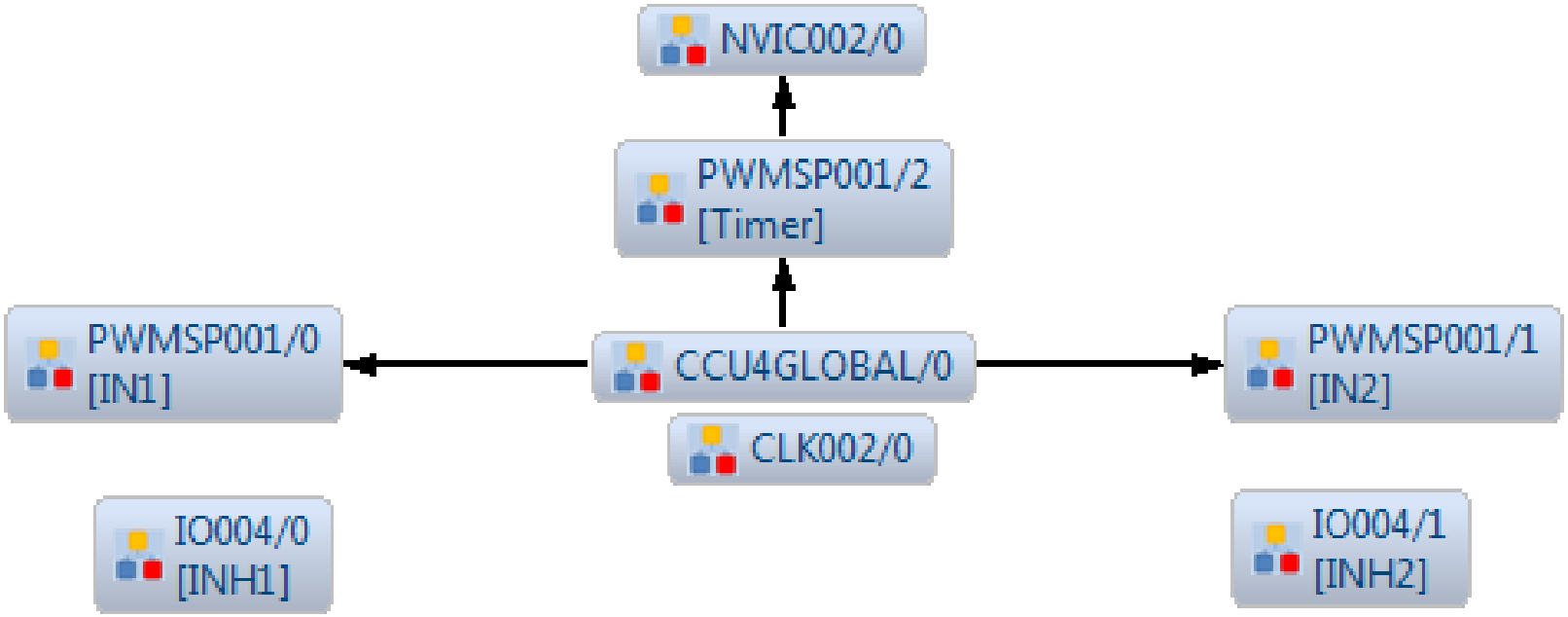
H-Bridge Control Software

for the DC Motor Control Shield with XMC1100 Boot Kit and DAVE

Q1 2015

DAVE APPs Structure

- Output Voltage is controlled by two PWMSP001 APPs
- Ramp time is controlled by a third PWMSP001 APP via Interrupts
- Inhibit signals are software controlled by IO004 (port pins)

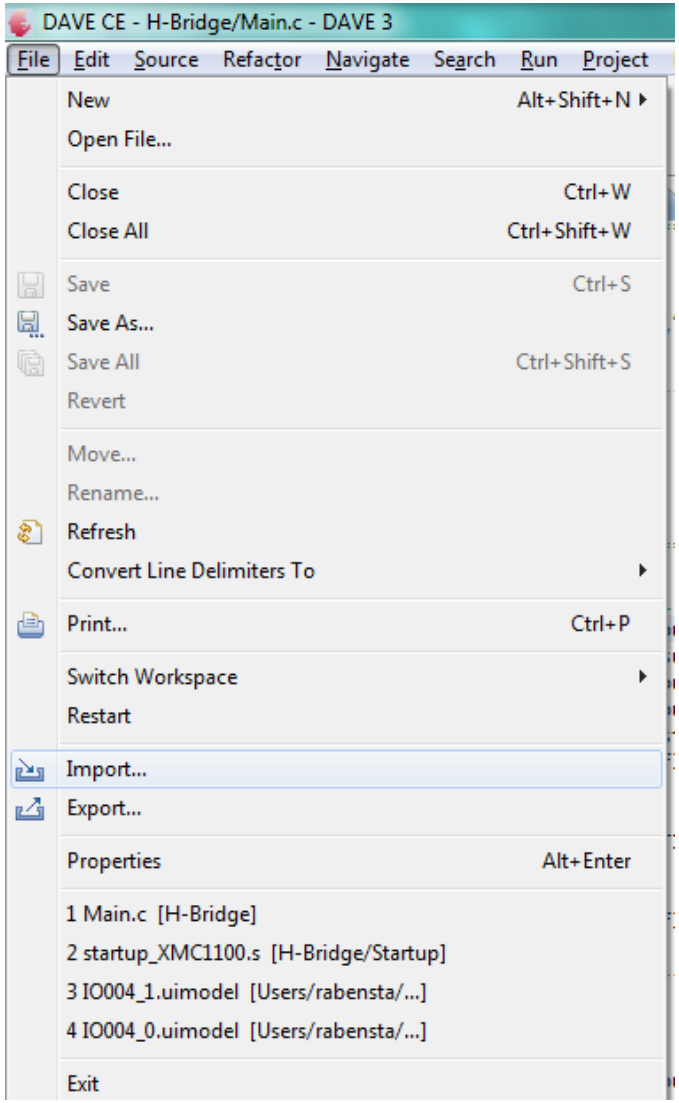


Ramp Generator and its Parameters

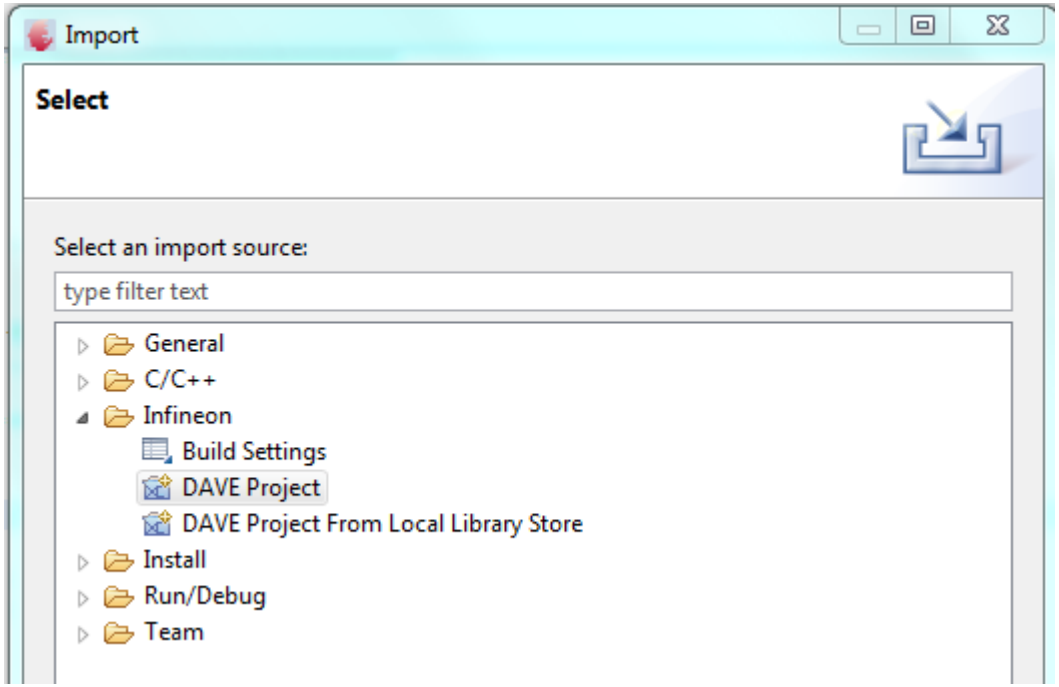
```
// Parameters
const int32_t supplyvoltage = 12;// supply voltage, used for scaling the duty cycle
const int32_t outputvoltage_max = 4;// maximum output voltage
const int32_t outputvoltage_min = -4;// minimum output voltage
const int32_t flat_time = 100;// ticks based on 25Hz. (100 ticks = 4 seconds)

/*************************************************************
 *    Ramp Generator                                         *
 *************************************************************
 *                                                           *
 * max    -------------                                      *
 *       /  flat_time  \                                     *
 *      /               \                       /            *
 *     /                 \                     /             *
 * 0 -/-------------------\-------------------/------------- *
 *                         \                 /               *
 *                          \               /                *
 *                           \  flat_time  /                 *
 * min                        -------------/                 *
 *                                                           *
 *************************************************************/
```

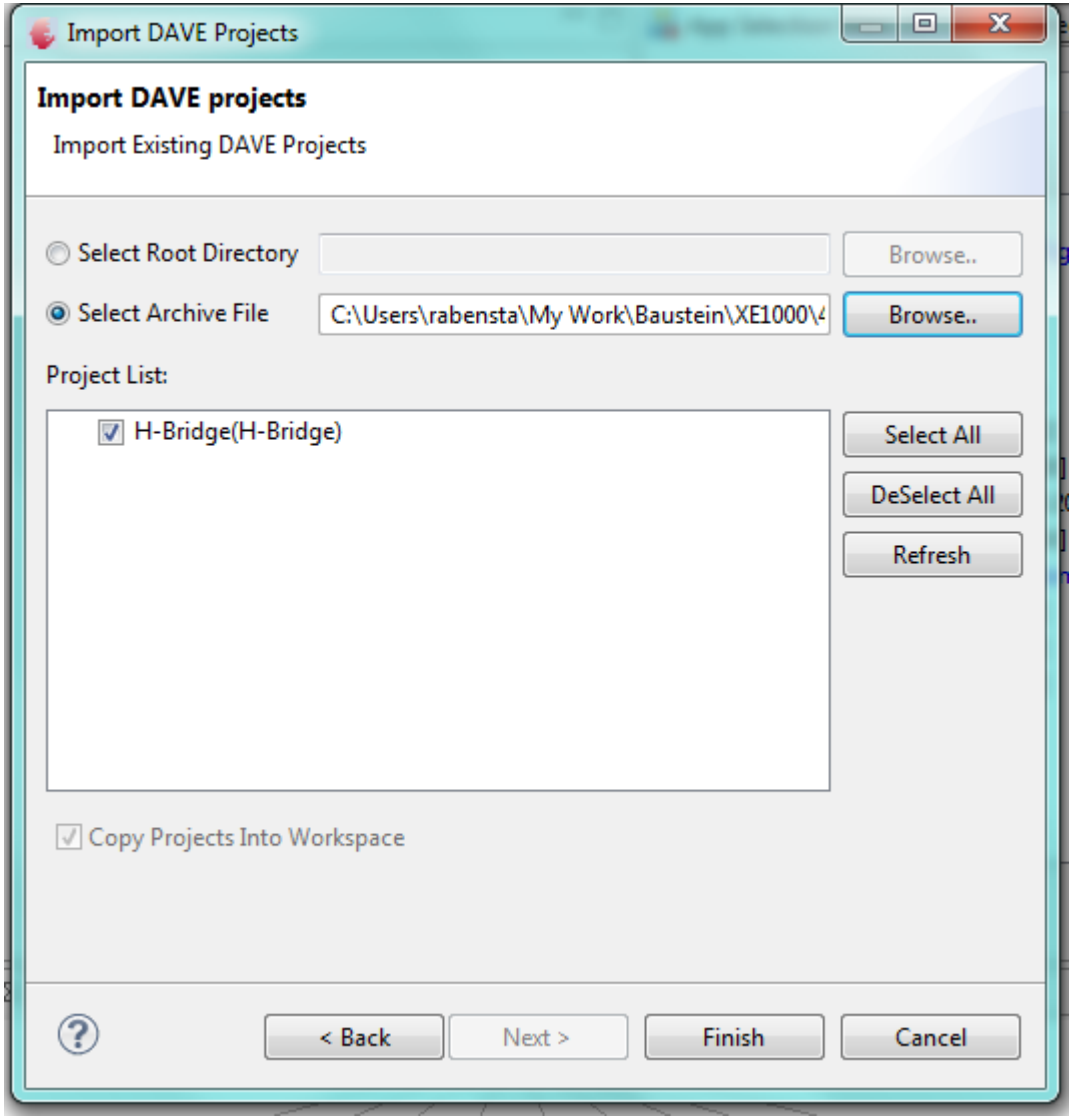
How to import the project into DAVE



- 1) Select File – Import
- 2) Chose Infineon – DAVE Project



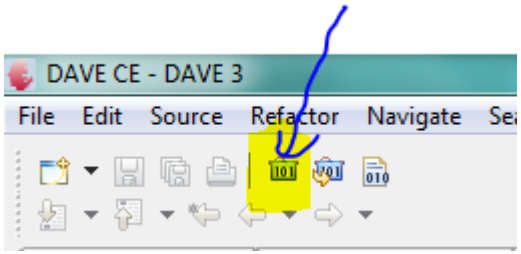
How to import the project into DAVE



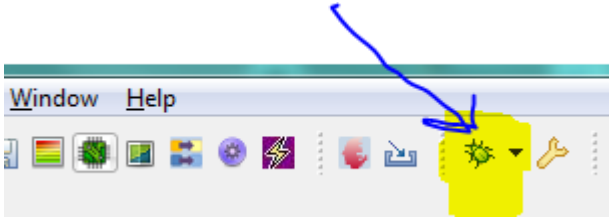
- Select archive File
- Browse for the file
- Select the project
- Click Finish

How to download and run the project

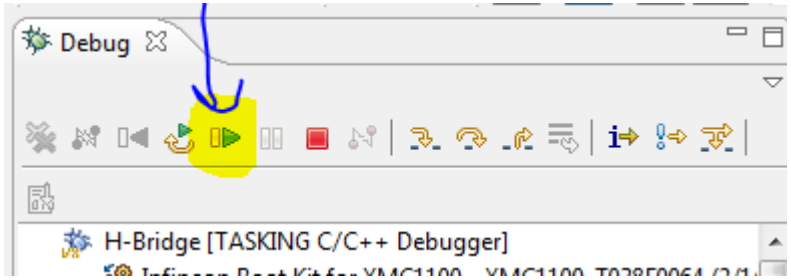
- Build the project



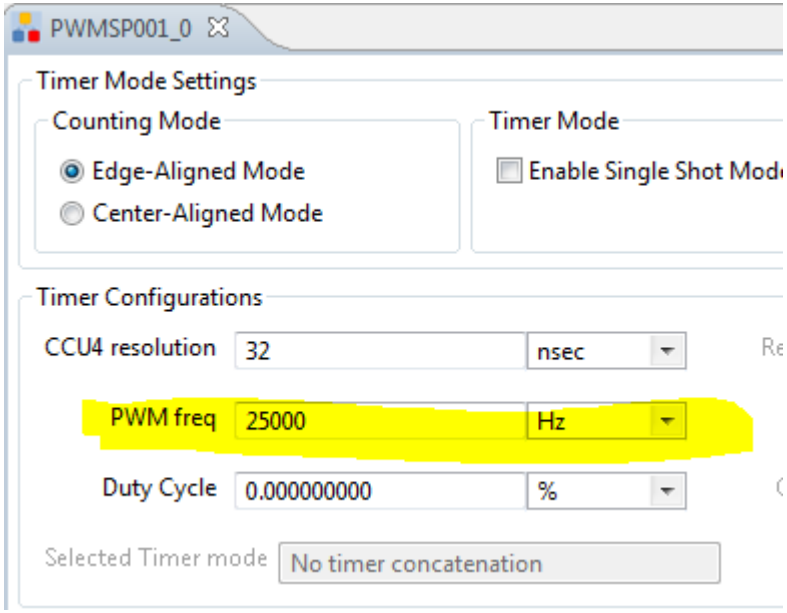
- Start Debugger



- Run the software



How to change PWM Frequency



- Change PWM Frequency in both PWM APP instances
  - PWMSP001/0
  - PWMSP001/1

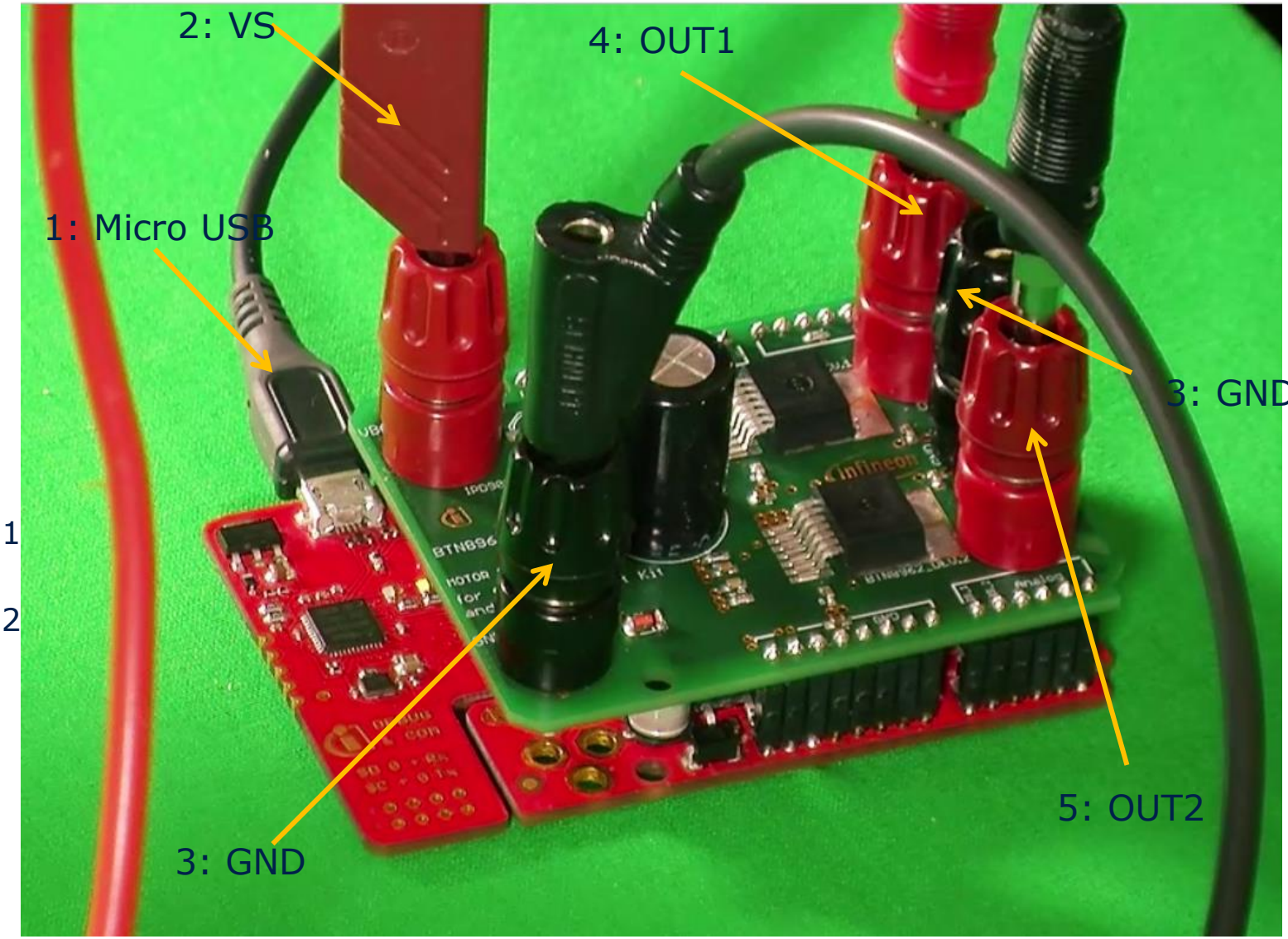
How to connect the Shield to Power and Motor

- H-Bridge configuration:

Connect DC motor to OUT1 and OUT2

- 2 x half-bridge configuration:

Connect DC motor 1 to OUT1 and GND.
Connect DC motor 2 to OUT2 and GND



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