

# Lab2 Presentation

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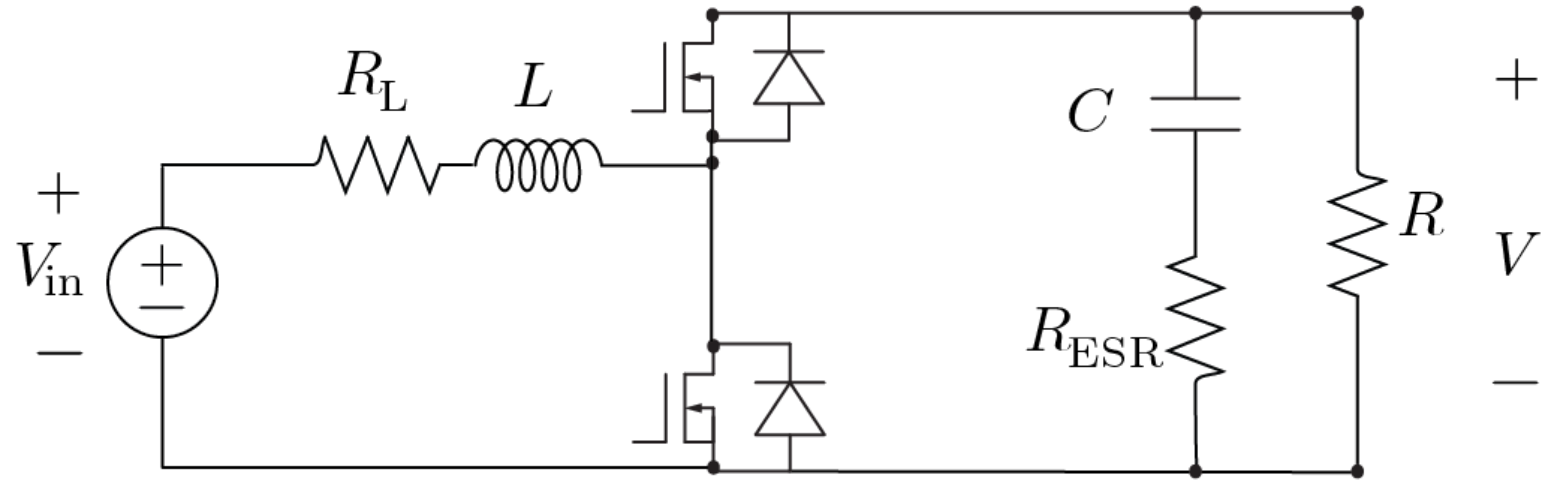
Jan 26<sup>th</sup>, 2020

# Main theme

## RT-Box Preliminaries

- Build an PLECS boost converter model
- Learn how to make it compatible with RT-Box simulation
- Run in open loop using PWM. Use ADC to only sense the voltages and currents but not do any actual control

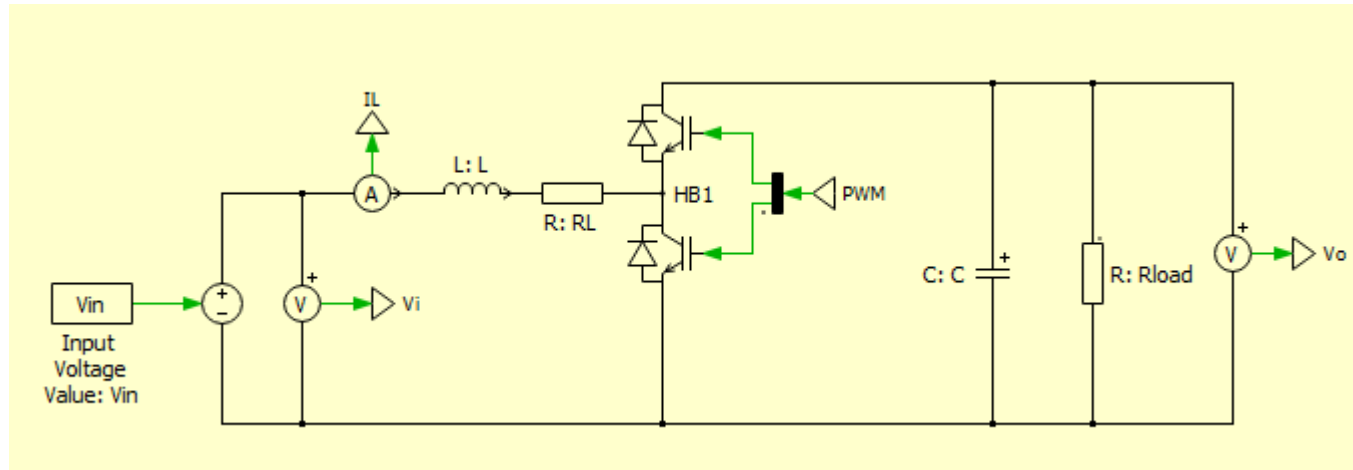
# Circuit



Making it compatible with RT-Box



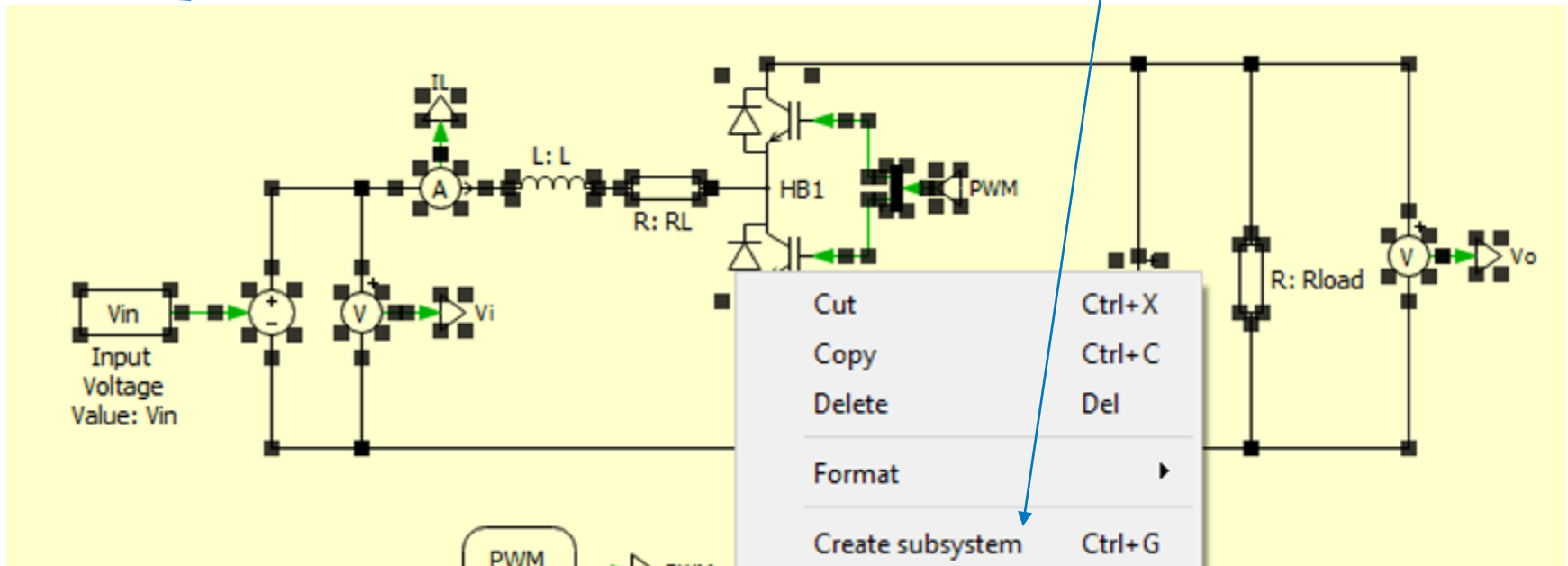
# The PLECS model



# Making a code-generation enabled subsystem

Select all of the circuit

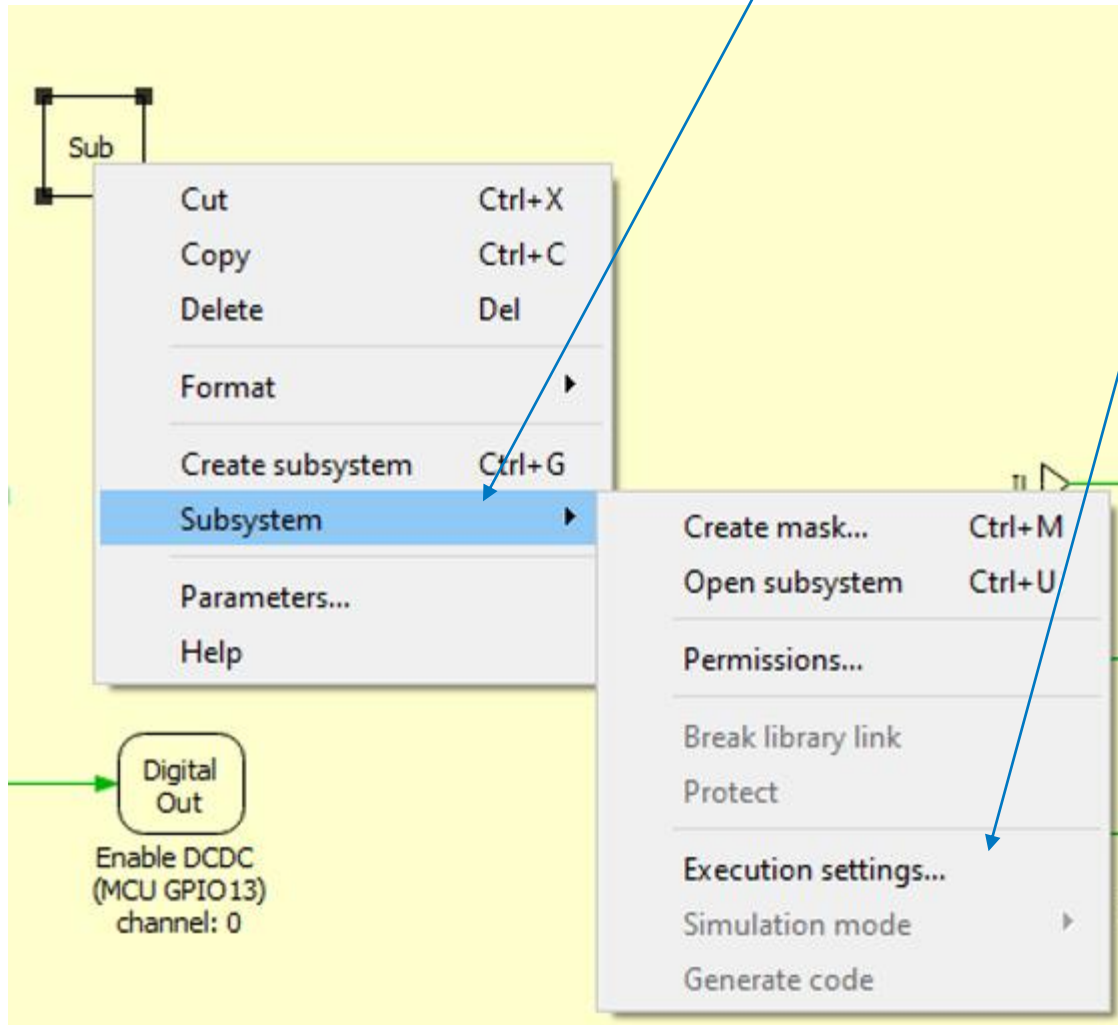
Create a subsystem



# Making a code-generation enabled subsystem

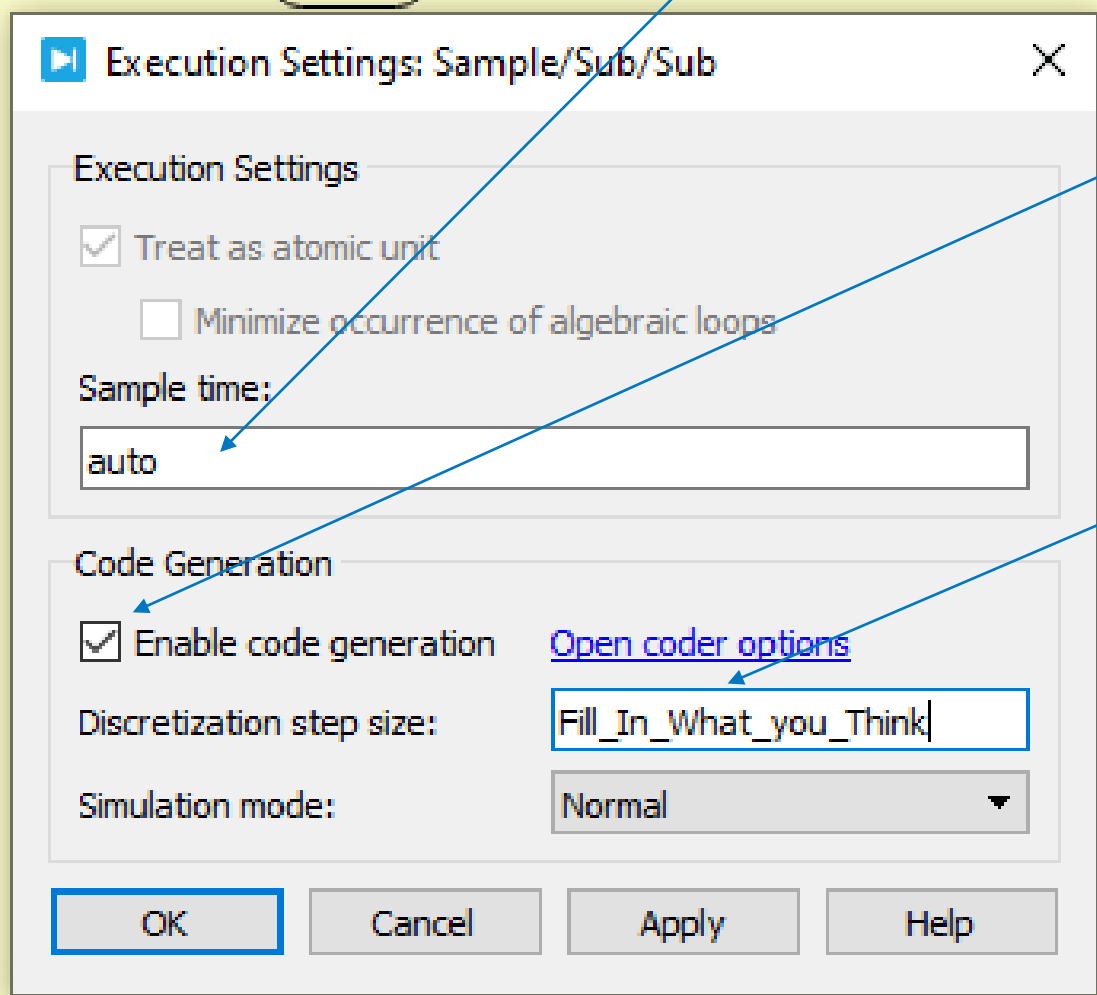
Select this

Select this



# Making a code-generation enabled subsystem

Select this



The image shows a MATLAB/Simulink 'Execution Settings' dialog box for a subsystem named 'Sample/Sub/Sub'. The dialog is divided into two main sections: 'Execution Settings' and 'Code Generation'. In the 'Execution Settings' section, the 'Treat as atomic unit' checkbox is checked, and the 'Sample time' is set to 'auto'. In the 'Code Generation' section, the 'Enable code generation' checkbox is checked, and the 'Discretization step size' is set to 'Fill\_In\_What\_you\_Think'. The 'Simulation mode' is set to 'Normal'. Red annotations with arrows point to specific elements: 'Select this' points to the 'Treat as atomic unit' checkbox; 'Check this' points to the 'Enable code generation' checkbox; and 'Fill this' points to the 'Discretization step size' text box. A blue annotation 'Open coder options' points to a link in the 'Code Generation' section. The 'OK' button is highlighted with a blue border.

Execution Settings: Sample/Sub/Sub

Execution Settings

- ☒ Treat as atomic unit
- ☐ Minimize occurrence of algebraic loops

Sample time: auto

Code Generation

- ☒ Enable code generation [Open coder options](#)
- Discretization step size: Fill\_In\_What\_you\_Think
- Simulation mode: Normal

OK Cancel Apply Help

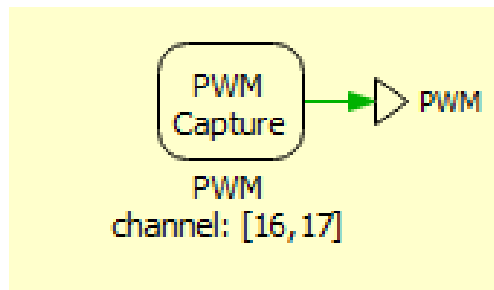
Check this

Fill this

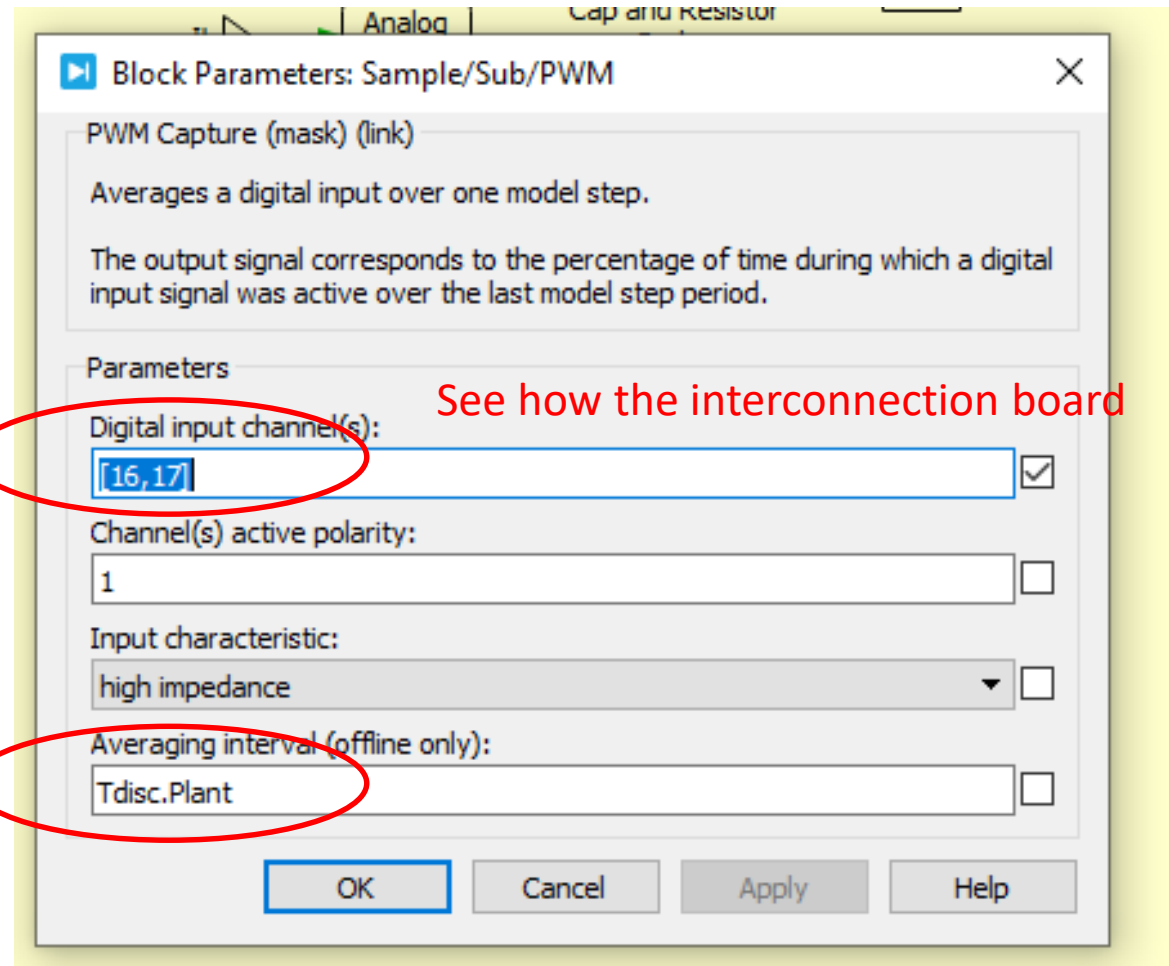
[Open coder options](#)



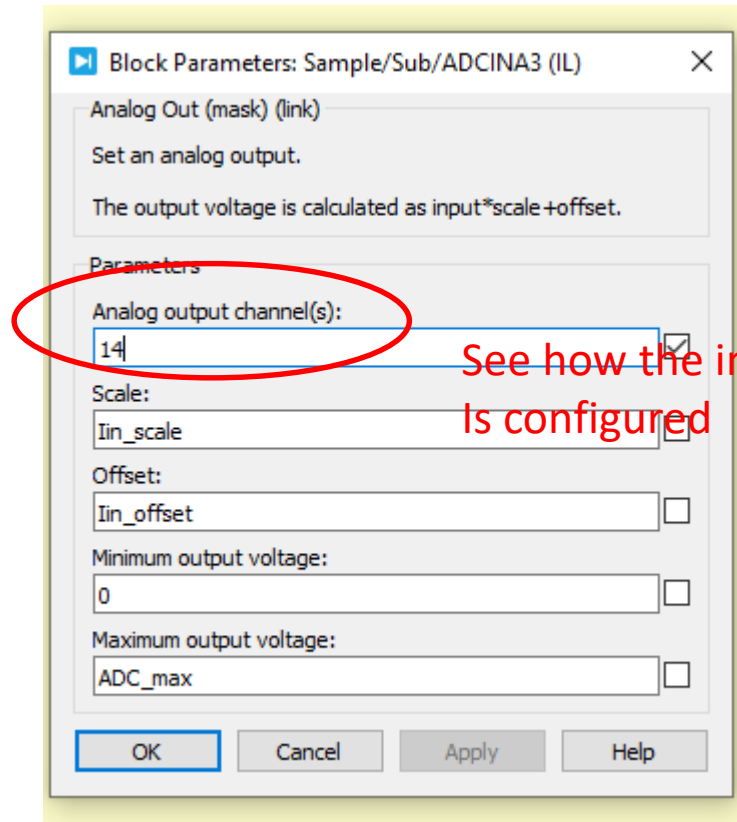
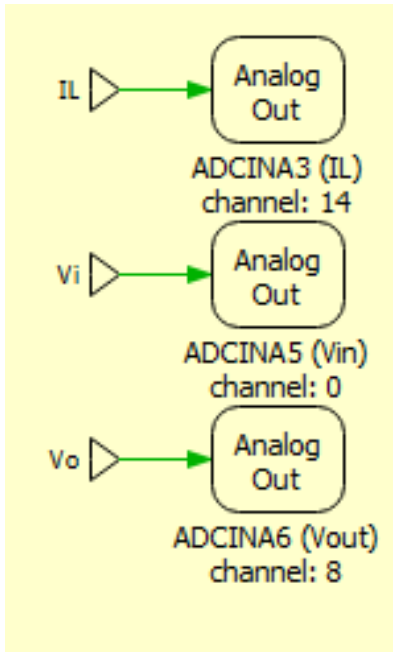
# PWM capture



This is the real time discretization paper



# ADC Block

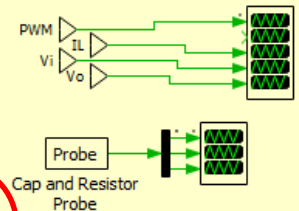
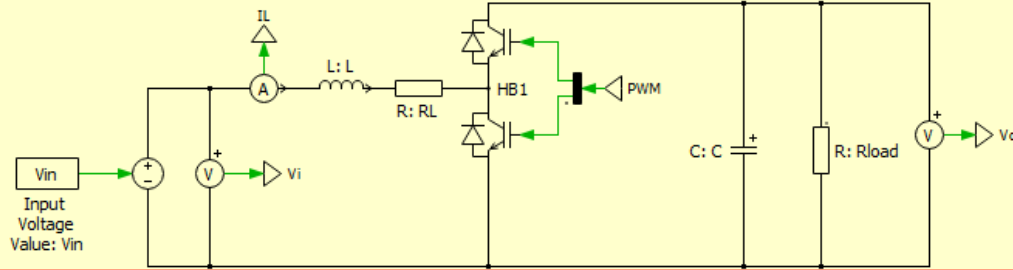


# The whole system

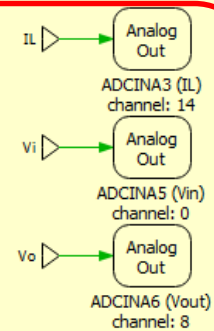
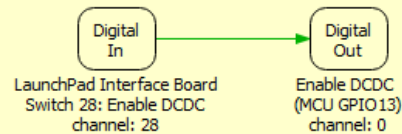
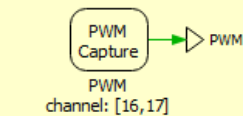
Sample/Sub \*

File Edit View Simulation Format Coder Window Help

CKT



PWM/ADC



Go to “Coder” Tab on the menu bar at top and get this

Your sub module

Use this to find your RT Box

Click on this to upload code

