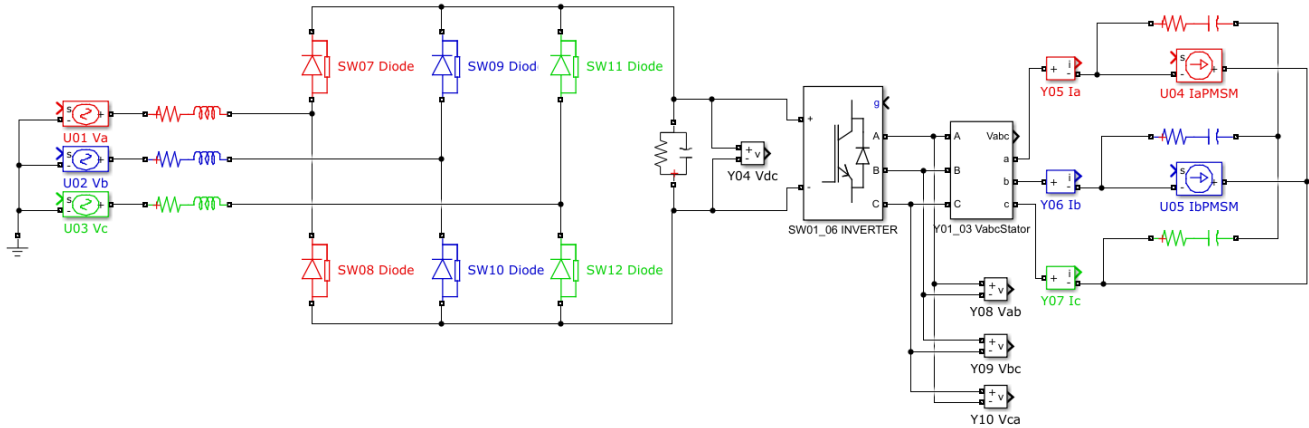


5. Quad SCIM Constant Local Control

This tutorial describes how to configure the OPAL-RT Power Electronics Add-On to simulate a grid-tied SCIM drive and machine with a closed-loop controller. We will discuss deploying, running, and monitoring the simulation in real-time.

The eHS circuit model used in this example was created using the [Simscape Electrical Specialized Power Systems Simulink Blockset](#) (see below). It represents a grid-tied, three-phase diode rectifier for charging the DC Link, as well as a two-Level, three-phase universal bridge. The bridge is electrically connected to the SCIM model through the project configuration. We generate three sine waves using the built-in FPGA signal generators to simulate the $U01 Va$, $U02 Vb$, and $U03 Vc$ AC sources in the electrical circuit. The universal bridge gates $SW01_06 INVERTER$ are controlled using signals from the on-board SPWM generators. The SCIM calculated currents are fed back to the universal bridge through the current sources $U04 IaPMSM$ and $U05 IbPMSM$. Nominal operating speeds of the example SCIM are between 1500 and 4000 RPM.



The tutorial has been split into the following sections:

5.0 Opening the Example

5.1 Configuring the Real-Time Controller

5.2 Selecting the Hardware Configuration

5.3 Configuring the Electrical Models

5.4 Configuring the Sources of the Model

5.5 Configuring the Switches of the Model

5.6 Setting Default Values for the SPWM Generators

5.7 Configuring the Waveforms of the Simulation

5.8 Configuring the Local Controller

5.9 Deploying and Running the Simulation

5.10 Controlling and Monitoring the Simulation