This version (10 Aug 2019 17:24) was ***approved*** by mthoren_adi.
The Previously approved version (19 Jul 2019 16:51) is available.

ADALM-BUCK-ARDZ hardware

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Description

The ADALM-BUCK-ARDZ board is a companion module for the Buck Basics lab exercise: Activity: Buck Converter Basics

This lab exercise can be done on a breadboard using parts from the ADALP2000 parts kit, but it is too involved to do in a hands-on seminar session or single-day workshop. The ADALM-BUCK-ARDZ module is designed to eliminate the assembly time associated with constructing the circuit on a breadboard, while keeping all of the measurements and experiments intact.

The Figure 1 shows the various connections, and along with the schematic below can be used as a guide as you work through the lab exercise.

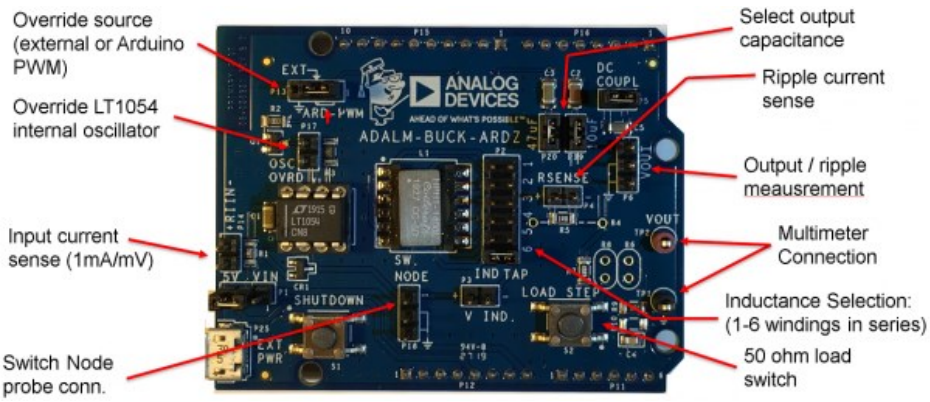

Figure 1. ADALM-BUCK connections and jumpers

ADALM-BUCK-ARDZ Jumpers and Connections

The default jumper configurations for this board model are as follows:

Jumper	Function	Default Setting
P1	Power Supply Select	Shunt installed across pins 2 & 3 (5V from Arduino)
P2	Inductor Tap #	Shunt installed across pins 1 & 2 (6 taps/max inductance)
P3	Inductor Voltage	Open (for M2K connection)
P5	DC coupling (remove for AC coupling)	Shunt installed
P6	Output at pin 1, lower 2 pins are GND	Open (for M2K connection)
P10	Arduino Analog input 0	Solder Blobbed
P13	Override source	Shunt installed across pins 1 & 2 (Arduino PWM)
P17	Enable Override	Shunt NOT installed
P18	Switch Node at pin 1, lower 2 pins are GND	Open (for M2K connection)
P19	10µF output capacitor	Shunt installed
P20	47µF output capacitor	Shunt installed

Jumper	Function	Default Setting
P24	Arduino PWM output 3	Solder Blobbed
All Others		Open / no shunt installed

Hardware Setup Procedure

Figure 2 shows the ADALM2000 connections for measuring the switch node voltage on Channel 1 and ripple current on Channel 2. The ADALM-BUCK is installed on an Arduino UNO clone with LT1054_voltage_mode_buck_DC_ctrl.ino sketch uploaded (refer to Buck Basics lab exercise for details.)

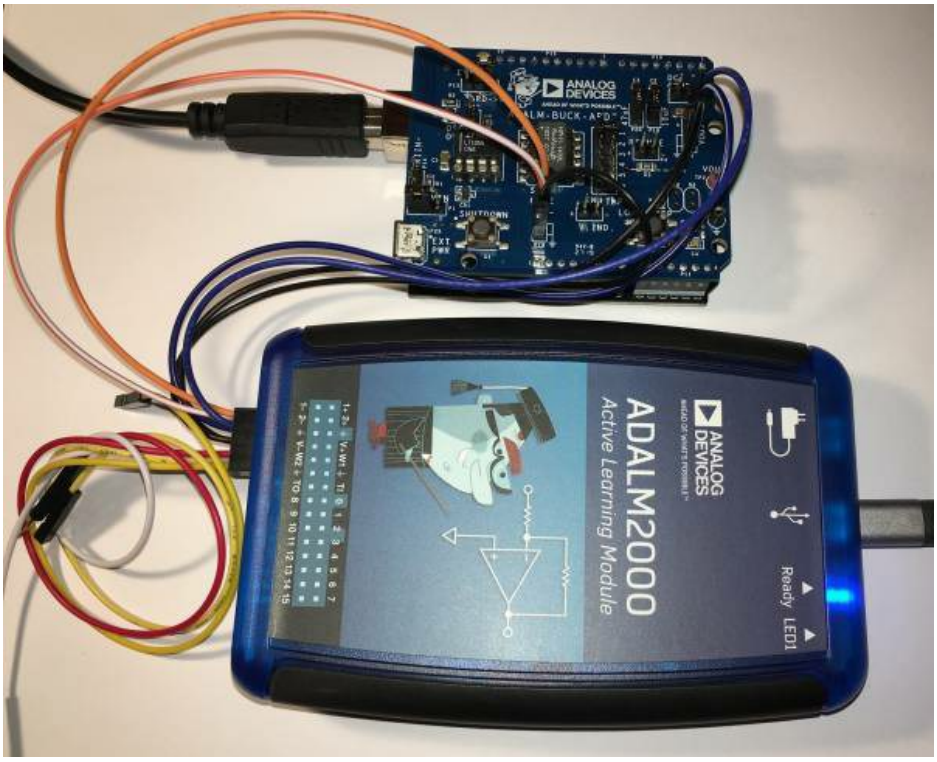

Figure 2. ADALM-BUCK - ADALM2000 connections

Schematic, PCB Layout, Bill of Materials

ADALM-BUCK-ARDZ Design & Integration Files

- Schematics
- Bill of Materials
- Assembly Files
- Gerber Files

End of Document