IOIO Shield Adapter
Assembly Guide

For the most up-to-date information, visit the ISA Aseembly wiki:
http://www.richmayfield.com/wiki/index.php?title=The_ISD_Assembly_Guide

Solder SMT Components

1) Solder SMT resistors
   A) 6 1k Resistors in the middle of the board.
   B) 1 5.4k Resistor above the IOIO diamond.
   C) 2 10k Resistors on the right side.
2) Solder JST connector on left side of board.
3) Solder DIP Switches in place.
   A) Pay attention to orientation. The 6 Position DIP switch package lettering is "upside down" in relation to the silkscreen lettering.

Solder Through-Hole Components

4) Solder resistor network (manila). Ensure the ground pin marking is to the right.
5) Solder IOIO Headers
   A) I recommend placing female headers on the male headers on your IOIO to ensure smooth mating. Otherwise, it may be difficult to plug the IOIO in.
      i. The 11 Pin Header goes on the short side of the IOIO headers **between pins 21 and 31**.
      ii. The 21 Pin Headers go along the side.
      iii. The 2 and 4 Pin headers go on the inner power rails of a Version 1 IOIO and are optional if you don't plan to use a V1 IOIO.
      iv. Plug the assembly in and make sure female headers are flush against the PCB
      v. Solder the headers in place.
6) Solder Arduino Headers using the same technique
   A) The middle conductor of the 13 pin header must be pulled out.
7) Solder Screw Terminal
8) Solder Jumpers
   A) Break the 12 pin jumper into 4 sections (3 pins each)
   B) Place the jumpers in the power coupling section and A/D function section.
   C) Ensure they are flush with the PCB
   D) Solder in place

ISA Test App

Finalize and Test

1. Inspect the board for cold solders or missing components.
2. You may wish to populate the optional pull-up pads on the top of the board.
3. Clean off any excess solder flux with alcohol.
4. Apply power to Vin and probe the board for proper function. Notably, make sure there are no shorts to ground or full Vin on any pins except Vin.
5. Download and install the ISA Test App from http://www.richmayfield.com/wiki/files/ISATestV1.apk
6. Plug in the IOIO to the board and apply power.
7. Connect IOIO to Android and start the ISA Test App.
   1. The Stat LED will come on when the Android connects to the IOIO.
   2. Vin should read the approximate voltage on the Vin bus. This depends on a voltage divider, so it may need to be adjusted.
8. Testing Pins
   1. Run a jumper from an Arduino Digital Pin to an Arduino Analog Pin
   2. Click the appropriate button to turn that Digital Pin on.
   3. You should see voltage reported on the Analog Pin you connected.
9. Handshake around to make sure everything is functioning
   1. Arduino Pin 0 to A/D 0 then 1, 2, 3, 4, 5.
   2. Scale the signal with DIP switches and repeat. Should read 3.2 or so.
   3. Set all Pins High
   4. Plug jumper into A/D channel
   5. Move Jumper across Arduino Digital Pins ensuring they are all active.