ULTiM8x8, The Ultimate 8x8 LED Matrix

Test Plan
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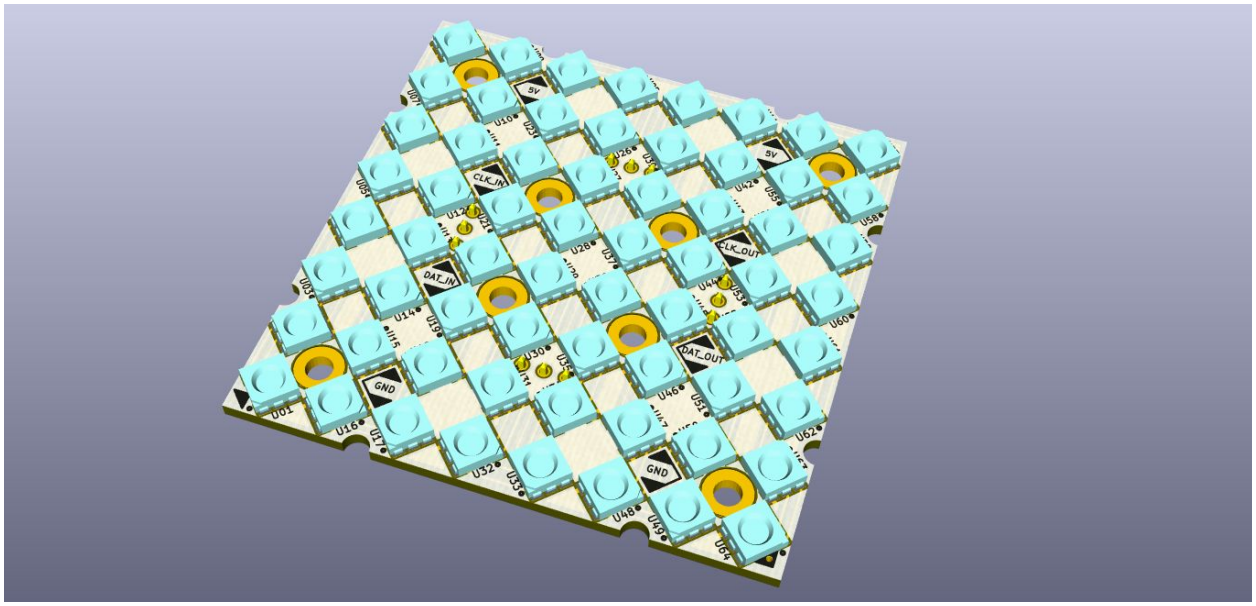
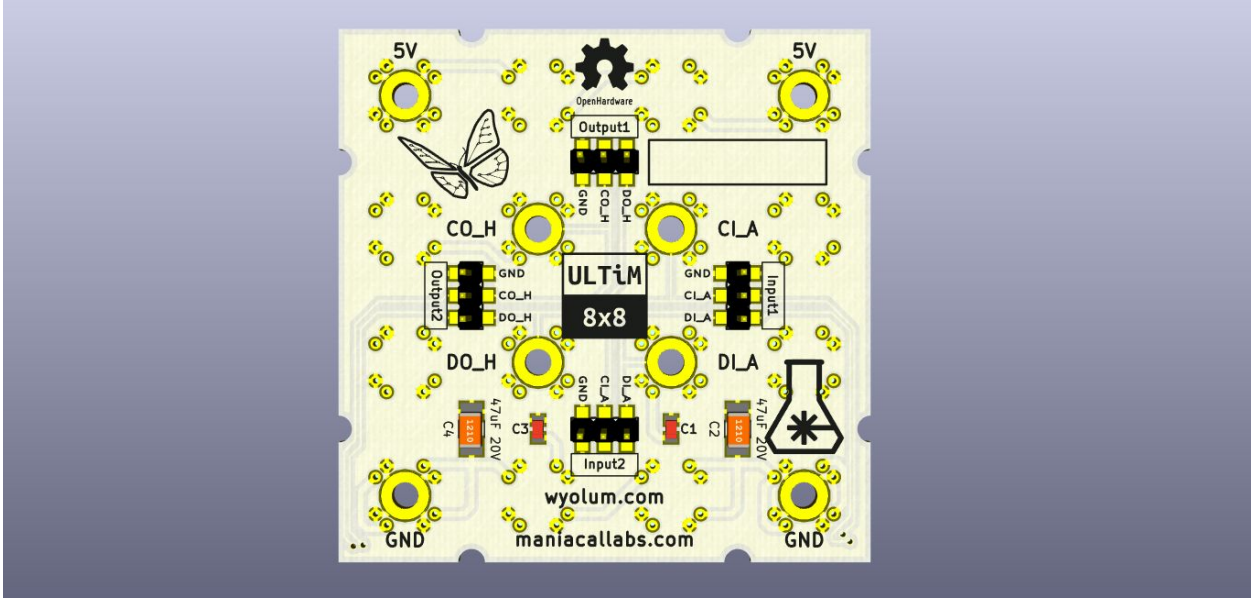
Overview:

ULTiM8x8 is an 8x8 matrix of APA102 LED pixels arranged in a serpentine pattern.



Testing requires connecting to the Power, Ground, Data, and Clock mounting points as labeled on the PCB.



Power Input connections are via 3mm mounting holes labelled [**5V**] and [**GND**].

- **CI_A** = Clock Input (from controller or previous ULTiM8x8)
- **DI_A** = Data Input (from controller or previous ULTiM8x8)
- **CO_H** = Clock Output (to next ULTiM8x8)
- **DO_H** = Data Output (to next ULTiM8x8)

Clock and Data Inputs can be applied either to [**INPUT1**] or [**INPUT2**], or to the 3mm mounting holes marked as **CI_A** and **DI_A**.

In order to avoid the LED lost issue, please consider to add reflow into the production procedure and improve the packaging.

Functionality to be tested

Each LED should be capable of displaying RED/GREEN/BLUE and WHITE.

Test Hardware Required

1. Arduino UNO or similar
2. Power hookup wires (18AWG+). Alligator clips may be used to connect to the terminals.
3. 3 male-female jumpers (data, clock, ground from arduino)
4. 5V@5A power supply

Test Setup

1. Ensure proper ESD precautions are observed: anti-static mat, anti-static wrist strap, etc.
2. Program the Arduino compatible with test code. (http://maniacallabs.com/misc/ULTiM8.zip) No extra libraries are required, everything is

included in the 3 source files within the Zip.

3. Connect the Arduino compatible to ULTiM8x8 under test.
    a. Arduino D4 - ULTiM8x8 Data In
    b. Arduino D5 - ULTiM8x8 Clock In
    c. Arduino GND - ULTiM8x8 GND
4. Connect power supply, but do not apply power yet
    a. Power +5V --> ULTiM8x8 +5V
    b. Power GND --> ULTiM8x8 GND

Test Sequence

1. Visual inspection for any defects, prior to hookup: verify all LEDS are aligned correctly. Verify all other discrete components are aligned correctly on their pads and that there is no evidence of any solder defects.
2. Hookup as specified above
3. Vibration testing: lightly strike the board, edge on, against the table. Make sure no LEDs fall off.
4. Run hand over the LED array to see if any LEDs come loose.
5. Power the unit
6. See that ALL LEDs display ALL colors. Red -> Green -> Blue -> White -> Off -> Repeat