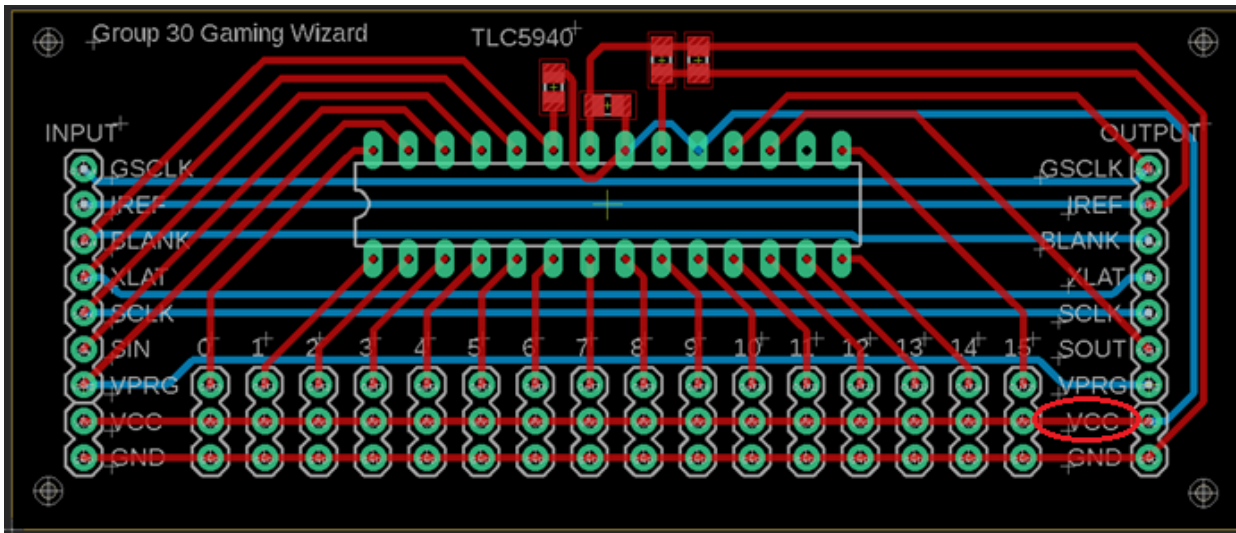Connecting LED Board Together

Break circled trace. Perform Continuity test if possible.

For each board connect VPRG to any of the ground ports on the bottom row. VPRG TO GND.

Do NOT connect the IREFs of the boards together.

Board 1   Board 2   Board 3   Board 4

Input Output   Input Output   Input Output   Input Output

GSCLK-------GSCLK GSCLK-------GSCLK GSCLK--------GSCLK

DO NOT CONNECT IREF

BLANK------BLANK BLANK-------BLANK BLANK-------BLANK

XLAT---------XLAT   XLAT---------XLAT   XLAT---------XLAT

SCLK---------SCLK   SCLK---------SCLK   SCLK---------SCLK

SOUT---------SIN   SOUT---------SIN   SOUT---------SIN

CONNECT EACH VPRG TO GND

GND---------GND   GND----------GND   GND---------GND

VCC----------------------VCC----------------------VCC-----------------------VCC

VCC-----------------------VCC----------------------VCC--------------------VCC

LEFT VCC IS THE 12 V LINE

RIGHT VCC IS THE 5V LINE

Yes there is only 1 port for the 5V on the right side of each board. This means that 2 wires will need to be soldered to the same port for boards 1, 2, and 3

Connecting MCU Board to LED Board 1

I have female wires already soldered to the MCU board.

THE 5V IS COMING FROM THE MCU BOARD NOT THE POWER BOARD.

Turns out the 5V regulator wasn't even needed. 5v will be coming from the usb to serial converter (very low current).

MCU Board   LED Board 1

  VCC (5V)------------------------Right VCC (Orange Wire)

  GND-----------------------------GND (Green Wire)

  GSCLK----------------------------GSCLK (White Wire)

  SCK-------------------------------SCK (Light Purple Wire)

  D2--------------------------------XLAT (Blue Wire)

  Dot--------------------------------Blank (Dark Purple Wire)

Power Board

 12V----------------------------------LEFT VCC

You need to connect gnd from power board to the mcu board. There are three places on the mcu board you can connect to: male pin on isp header, female port on serial port 0, or the solder point near the reset button.

Power Board   MCU Board

  GND------------------------------------GND

Connecting the LED boards to the RGB LEDs.

THESE ARE COMMON <u>ANODE</u> LEDs. Pinout shown below. The positive lead will be connected to the 12V VCC line on the LED Boards.

Common
Anode (+)

(+)

R   G   B

R   G   B
(+)
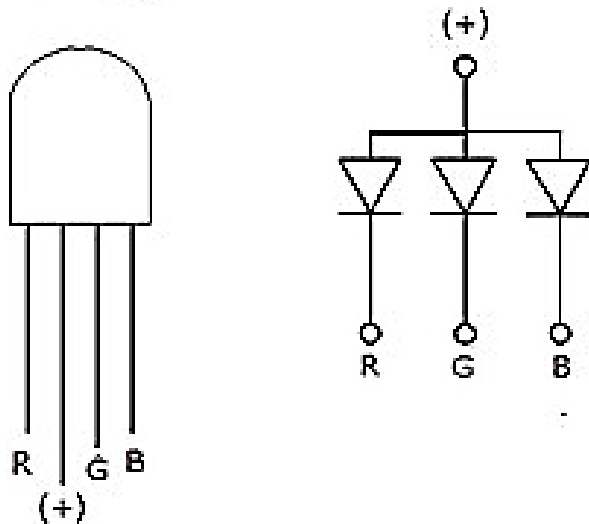
There are numbers on each LED Board (0-15).

For board 1

0 – 15 -> 0 – 15

Board 2

0 – 15 -> 16-31
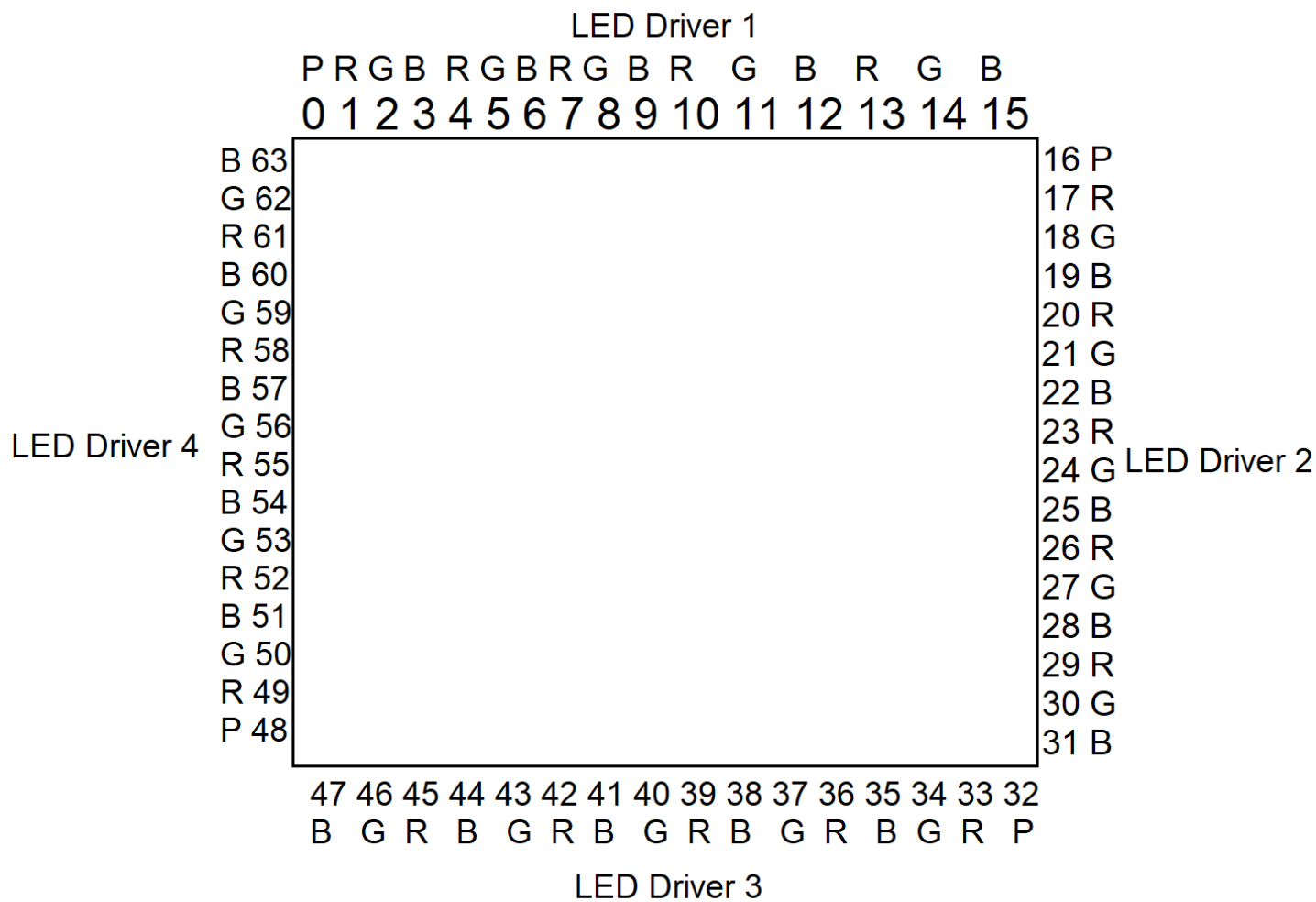
Board 3

0-15 -> 32-47

Board 4

0-15 -> 48-63

The picture below shows each channel number and their corresponding color.

Notice how in the picture below channels 0, 16, 32, and 48 have P.

These are player indicators. CONNECT ONLY THE GREEN LEAD OF AN RGB LED TO THESE. These can be placed anywhere on their corresponding sides. However they must be connected to the 0 port on the LED board.

LED Driver 1

P R G B R G B R G B R G B R G B
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

B 63   16 P
G 62   17 R
R 61   18 G
B 60   19 B
G 59   20 R
R 58   21 G
B 57   22 B
G 56   23 R
LED Driver 4   R 55   24 G   LED Driver 2
B 54   25 B
G 53   26 R
R 52   27 G
B 51   28 B
G 50   29 R
R 49   30 G
P 48   31 B

47 46 45 44 43 42 41 40 39 38 37 36 35 34 33 32
B G R B G R B G R B G R B G R P

LED Driver 3

Connecting USB to Serial adapter to MCU Board

You use the port 1 female header for this. However connect the green wire from the USB to Serial converter to DTR on port 0.

USB to Serial   MCU Board

Black Wire(GND)--------------------GND

Red Wire(VCC)----------------------VCC

Orange Wire(TX)--------------------RX1

Yellow Wire(RX)---------------------TX1

Green Wire(RTS)--------------------DTR (ON PORT 0!)

Here is link to usb to serial converter cable being used. https://www.sparkfun.com/products/9718

Once again the 5v powering the MCU and the LED drivers is coming from the pc through this converter. It is a low current.

Connecting Fan to MCU Board

The thermistor to control the fans is already soldered to the MCU board.

Connect the fans as shown below. Fans run between 50% and 100% power.

12V

Brown Wire on MCU Board. (labeled Fan)