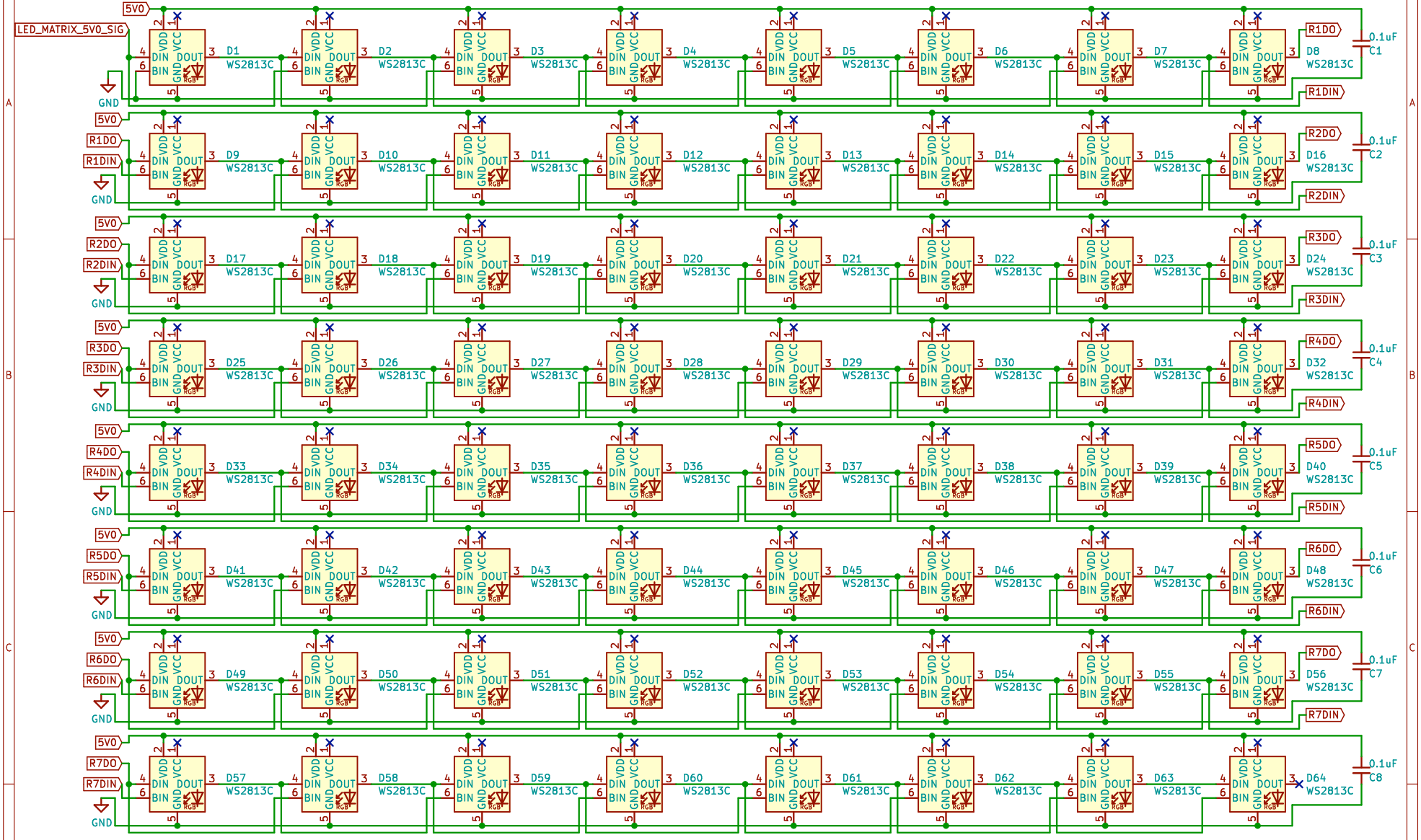
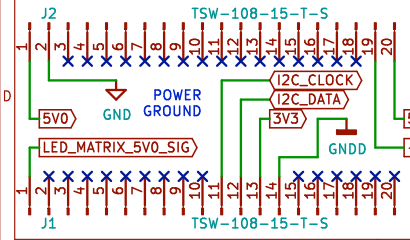
LED MATRIX





Male headers 1x8 pins, cut into 4 pairs and install at four corners.

SILKSCREEN F/B:
L: LSIG, USER
L: SCL, SDA, 3V3, GNDD
L: N/C, N/C
R: 5V0, GND
R: +BATT, 5VUSB

SILKSCREEN MISC.

CORE64 LED MATRIX (LM)
Project information at www.Core64.io
Designed by Andy Geppert | www.MachineIdeas.com
PCB P/N: 132-001
Version (Date)
LEDS: WS2813C

Sheet: LED MATRIX EXPANSION

File: Core64 LM v0.3 Expansion.sch

SILKSCREEN:
LEDS/PIXEL 0-7..
ORDER -> 56-63

L1
Core_64_Logo_9mm_tall

All capacitors ceramic X7R unless otherwise noted.

As released 2021-10-02
Visit www.Core64.io for information on assembly and optional features.
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Sheet: /
File: Core64 LM v0.3.sch

Title: Core64 LED MATRIX (LM)

Size: A	Date: 2021-10-02	**Rev: 0.3**
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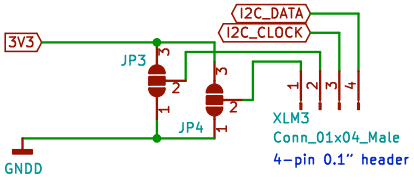
USER-PROVIDED OPTIONAL ADD-ONS

OLED MONOCHROME I2C - TOP

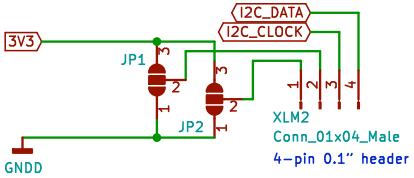
0.96" (128x64)
I2C 4-pins, ADDRESS: 0x3C (60 decimal)
Alternate is 0x3D, not 0x7A or 0x78 (wrong 8-bit)!
Must choose power polarity by soldering SJs.



SILKSCREEN: 3V3 ONLY, 3V3/GNDD sides of jumpers,
I2C OLED and pin names

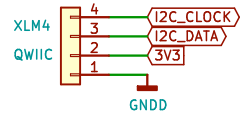
OLED MONOCHROME I2C - BOTTOM

0.96" (128x64)
I2C 4-pins, ADDRESS: 0x3C (60 decimal)
Alternate is 0x3D, not 0x7A or 0x78 (wrong 8-bit)!
Must choose power polarity by soldering SJs.



SILKSCREEN: 3V3 ONLY, 3V3/GNDD sides of jumpers,
I2C OLED and pin names

QWIIC I2C



SILKSCREEN: 3V3 ONLY
QWIIC I2C and pin names

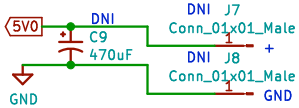
Diffuser layer alignment or mounting points

ALTERNATE "AAA" BATTERY PACK LOCATION

The 4x "AAA" battery pack (or 3x "AA") can be installed to the back side of the LED Matrix.
This configuration is not compatible with the 1S LiPo option described below.
This configuration is not recommended because the batteries are more likely to fall out in normal use.
If this configuration is desired, solder the battery pack wires to the B- and B+ position on the board where the 1S LiPo Charger would go.
Thread the wires from the backside so the insulated part of the wire is strain-relieved in the holes adjacent to the solder pads.
In this schematic GND (Ground Power) and +BATT correspond to the silk screen B- and B+ labels.

OPTIONAL 5V0 BUFFER CAPS

Optional 5V0 buffer capacitor locations - just in case...



1) SMD: 6.3mm dia x 7.7mm tall
2) Solder directly to J2 5V0 and GND pads on either side of the male header.
3) Thru hole radial lead: 2.5mm lead spacing, 6.3mm dia, 12.5mm tall

OPTIONAL 1S LIPO BATTERY - USER SUPPLIED

!!! 1S LIPO ONLY !!!
!!! 7.5V ABSOLUTE MAXIMUM !!!

* Do not connect AAAs to a LiPo charger! You will destroy it.

1) Remove the 4x "AAA" battery pack from the Logic Board or LED Matrix Board. It is no longer needed.

2) Purchase and install a LiPo charge manager.
   a) The logic board is designed to accept this one: https://www.adafruit.com/product/4410 (USB C).
   b) Solder the the charge manager directly to the board without headers to keep a low profile.

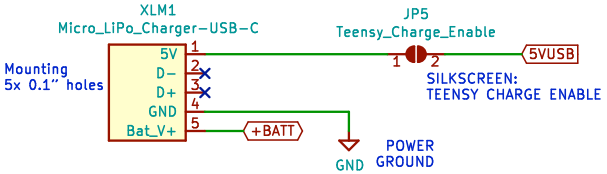
3) Purchase and install a 1S LiPo using double-sided tape.
   a) Choose a 1S Lipo with built-in cell over/under voltage protection. Largest recommended:
      2500mAh https://www.adafruit.com/product/328 2.0" x 2.4" x 0.3" (50mm x 61mm x 7mm)
   b) Make sure no part of the LiPo foil pouch can short-out adjacent pins or pads in the area. Insulate it with Kapton tape or similar.

Configuration of the Teensy_Charge_Enable Solder Jumper (SJ):
A) DEFAULT SJ OPEN:
   If you do NOT want the system to be powered from the USB port of the charger, leave the Teensy_Charge_Enable SJ open.
   Connecting a USB cable to the LiPo charger will ONLY charge the battery and power the system when the power switch is ON (up position).
   Connecting a USB cable to the Teensy will NOT charge the battery.

B) OPTIONAL SJ CLOSED:
   The LiPo charger 5V pin (Lipo Charger USB port) may be connected to the Teensy USB port through TEENSY_VUSB. Close the SJ to connect them.
   Connecting a USB cable to the LiPo charger will charge the battery and power the system
   Connecting a USB cable to the Teensy will power the Core64 board, charge the battery and connect to the serial port of the Teensy.

LIPO BATTERY CONNECTION AND USB CHARGER

SILKSCREEN:
1S ONLY
ADAFRUIT #4410 USB C



SILKSCREEN: LIPO CHARGER
SILKSCREEN: BAT. + BAT. -
SILKSCREEN: +/- pins

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