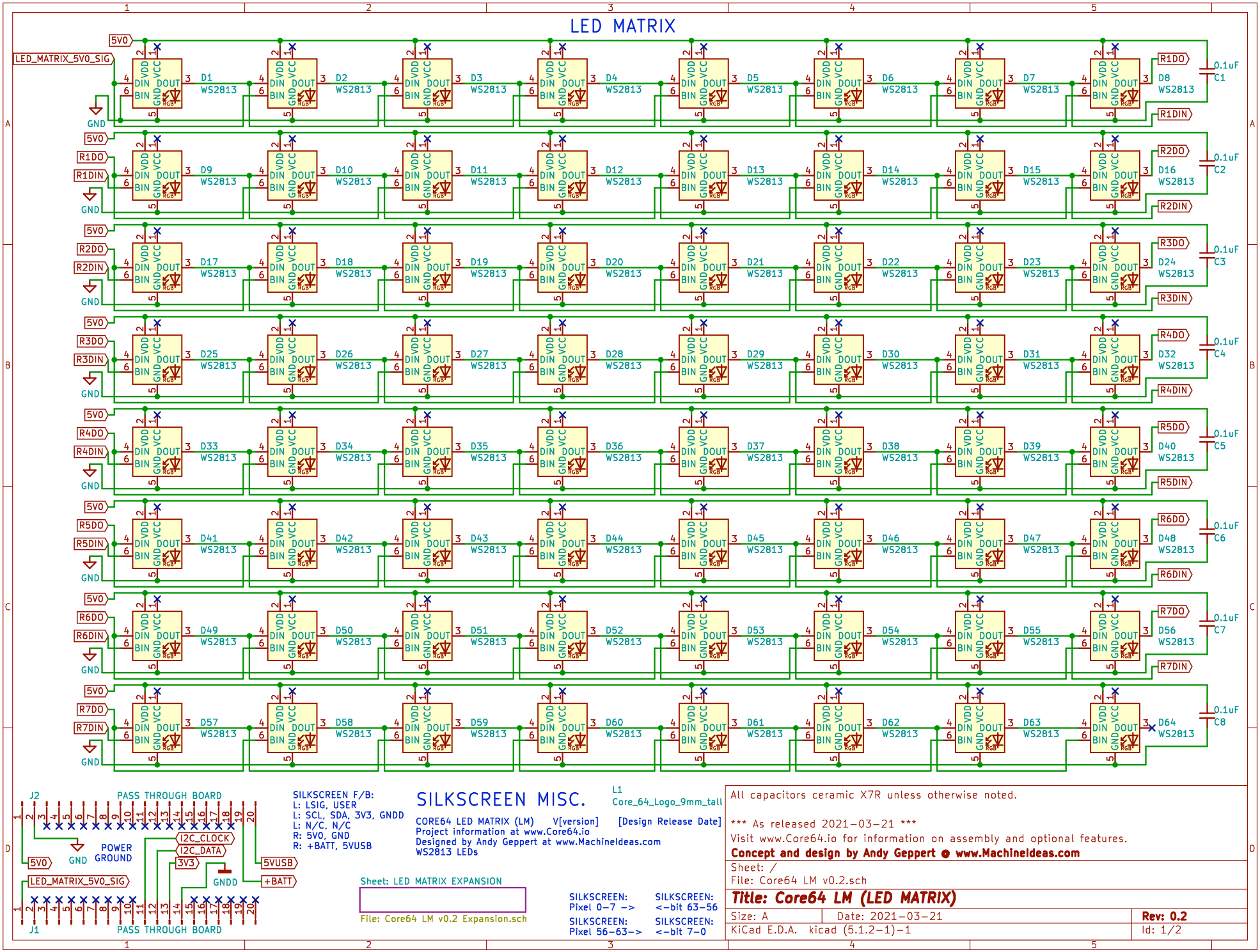
LED MATRIX
5V0
LED_MATRIX_5V0_SIG
GND
R1DO
R1DIN
R2DO
R2DIN
R3DO
R3DIN
R4DO
R4DIN
R5DO
R5DIN
R6DO
R6DIN
R7DO
R7DIN
D1 WS2813
D2 WS2813
D3 WS2813
D4 WS2813
D5 WS2813
D6 WS2813
D7 WS2813
D8 WS2813
D9 WS2813
D10 WS2813
D11 WS2813
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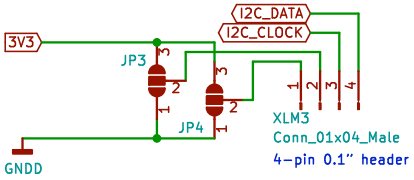
D56 WS2813
D57 WS2813
D58 WS2813
D59 WS2813
D60 WS2813
D61 WS2813
D62 WS2813
D63 WS2813
D64 WS2813
0.1uF C1
0.1uF C2
0.1uF C3
0.1uF C4
0.1uF C5
0.1uF C6
0.1uF C7
0.1uF C8
J2
PASS THROUGH BOARD
POWER
GROUND
I2C_CLOCK
I2C_DATA
3V3
GNDD
5VUSB
+BATT
J1
SILKSCREEN F/B:
L: LSIG, USER
L: SCL, SDA, 3V3, GNDD
L: N/C, N/C
R: 5V0, GND
R: +BATT, 5VUSB
SILKSCREEN MISC.
L1
Core_64_Logo_9mm_tall
CORE64 LED MATRIX (LM) V[version] [Design Release Date]
Project information at www.Core64.io
Designed by Andy Geppert at www.MachineIdeas.com
WS2813 LEDs
Sheet: LED MATRIX EXPANSION
File: Core64 LM v0.2 Expansion.sch
SILKSCREEN: Pixel 0-7 ->
SILKSCREEN: <-bit 63-56
SILKSCREEN: Pixel 56-63->
SILKSCREEN: <-bit 7-0
All capacitors ceramic X7R unless otherwise noted.
*** As released 2021-03-21 ***
Visit www.Core64.io for information on assembly and optional features.
Concept and design by Andy Geppert @ www.MachineIdeas.com
Sheet: /
File: Core64 LM v0.2.sch
Title: Core64 LM (LED MATRIX)
Size: A
Date: 2021-03-21
Rev: 0.2
KiCad E.D.A. kicad (5.1.2-1)-1
Id: 1/2

EVERYTHING ON THIS SHEET IS USER-PROVIDED OPTIONAL ADD-ONS

OLED MONOCHROME I2C - TOP

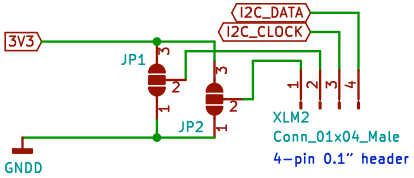
0.96" (128x64)
I2C 4-pins, ADDRESS: 0x3C (60 decimal)
Alternate is 0x3D, not 0x7A or 0x78 (wrong 8-bit)!
Must choose power polarity by soldering SJs.



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

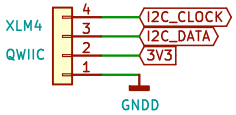
OLED MONOCHROME I2C - BOTTOM

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 1S LIPO BATTERY - USER SUPPLIED

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

1) Remove the 4x "AAA" battery pack.

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.

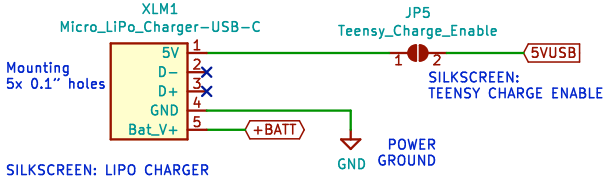
3) Purchase and install a 1S LiPo using double-sided tape.
   a) Choose a 1S Lipo with built-in cell over/under voltage protection. Largest recommended:
      2500mAh https://www.adafruit.com/product/328 2.0" x 2.4" x 0.3" (50mm x 61mm x 7mm)
   b) Make sure no part of the LiPo foil pouch can short-out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

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

All capacitors ceramic X7R unless otherwise noted.

*** As released 2021-03-21 ***
Visit www.Core64.io for information on assembly and optional features.
Concept and design by Andy Geppert @ www.MachineIdeas.com

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KiCad E.D.A. kicad (5.1.2-1)-1		Id: 2/2