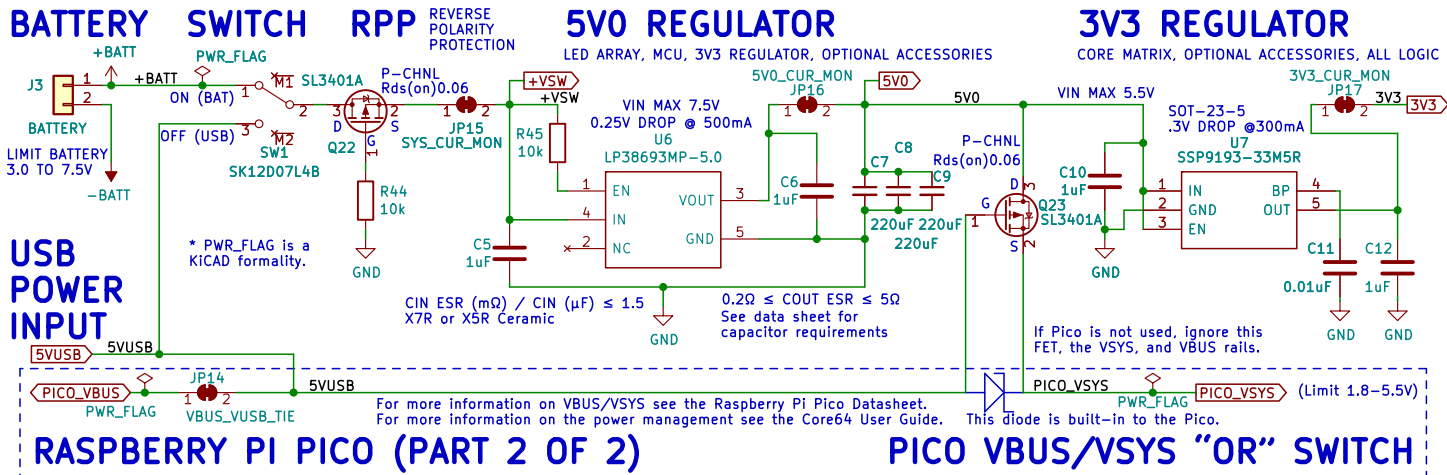


POWER SUPPLY



POWER FLOW MORE DETAIL IN CORE64 USER GUIDE

PRIMARY SWITCHED POWER SOURCES:
ON (BAT) : From battery on LED Array Board
OFF (USB) : From USB port on Pico

ALTERNATE/OPTIONAL SWITCHED POWER SOURCES:
ON (BAT) : From battery on Logic Board
OFF (USB) : From USB port of Lipo Charger on LED Array Board
* Requires closing USB Charge Enable solder jumper on the back of the LED Array Board.

TWO POWER INPUT SOURCES SELECTED BY SPDT SWITCH.

Power Switch ON (BAT), USB cable is NOT connected:
P-FET (gate is low) conducts 5V0 (or less if the battery is less than about 5.2V) so that PICO_SYS is powered.
PICO_VBUS is not energized because of built-in Zener diode on the Pico.

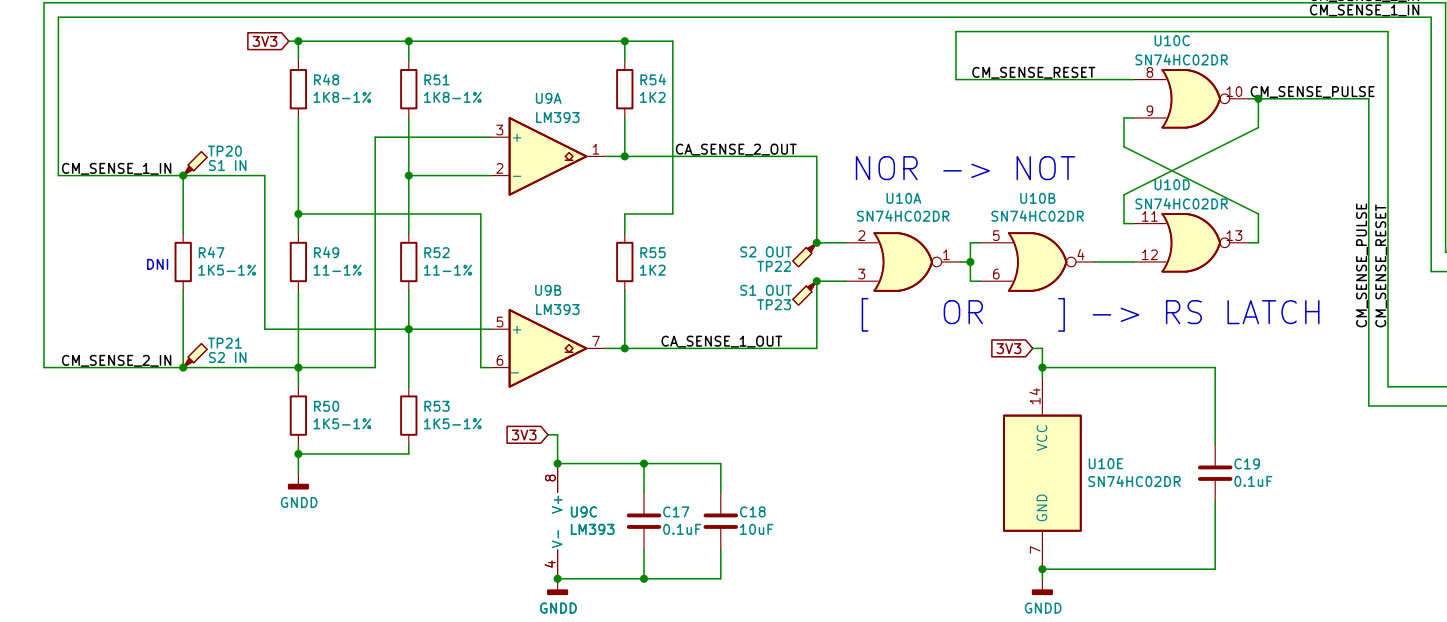
Power Switch OFF (USB), USB cable is NOT connected:
System is off and does not receive power from the battery.

Power Switch ON (BAT), USB cable IS connected:
If USB voltage is greater than 5V0, the Pico will operate with VSYS at the USB voltage. The rest of the system will operate from whatever the 5V0 rail voltage is.
If USB voltage is less than 5V0, the Pico will operate with VSYS at 5V0 along with the rest of the system. The Pico diode prevents current flow from 5V0 back out through USB.

Power Switch OFF (USB), USB cable IS connected:
The USB voltage will be greater than 5V0 (because there is a voltage drop through the 5V0 regulator). The P-FET will be off, the Pico will run at the USB voltage, the rest of the system will run at slightly less than the USB voltage.

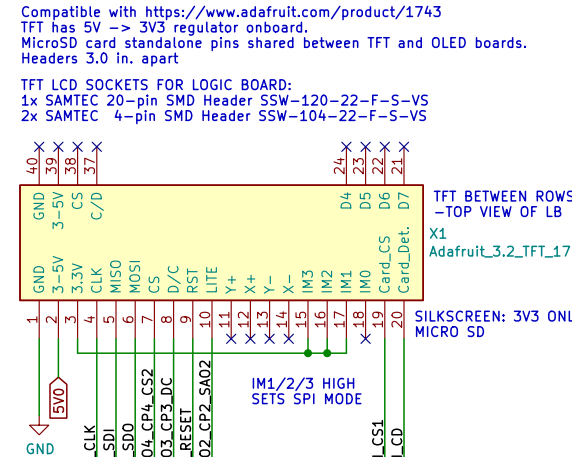
CORE MATRIX SENSE

SENSE SIGNAL DIFFERENTIAL AMPLIFIERS

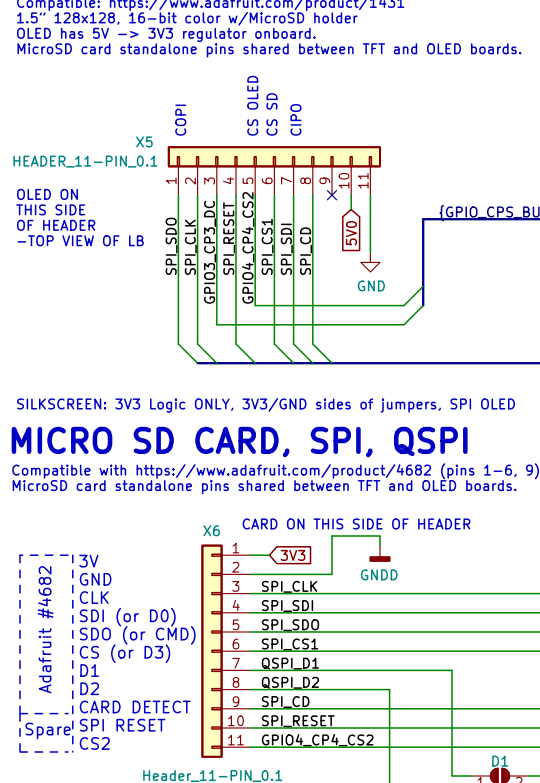


HACKER PLAYGROUND

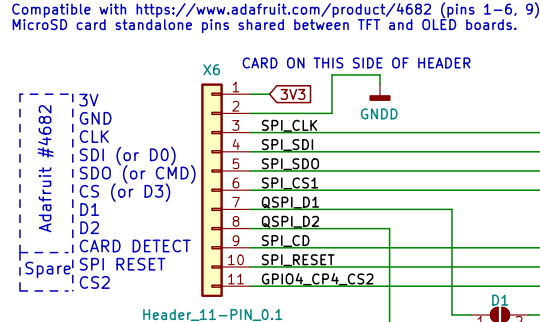
3.2" TFT LCD SPI W/ MICRO SD



OLED COLOR SPI W/MICRO SD

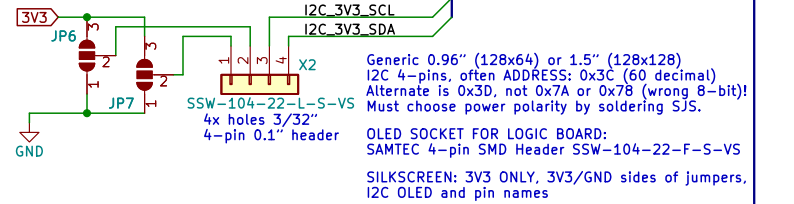


MICRO SD CARD, SPI, QSPI

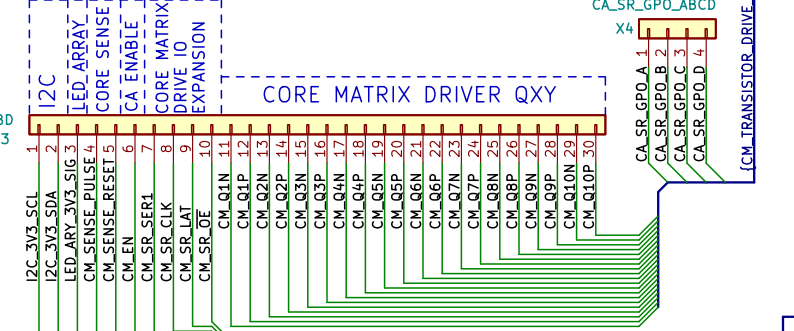


USER-PROVIDED OPTIONAL ADD-ONS SEE CORE64 HACKER GUIDE

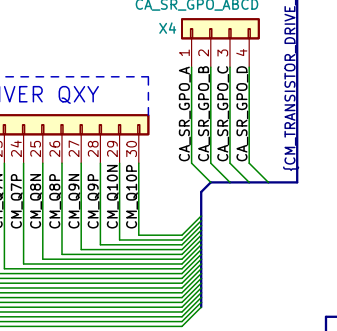
OLED MONOCHROME I2C



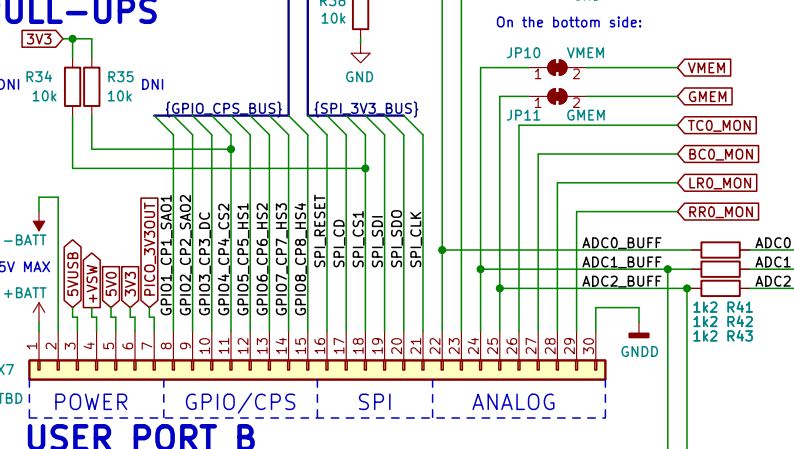
USER PORT A



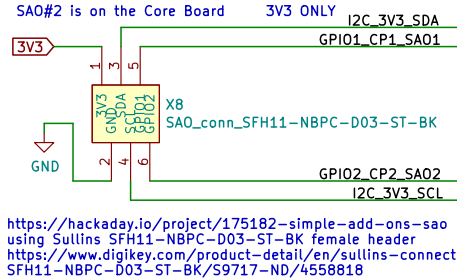
SPARE SR GPO



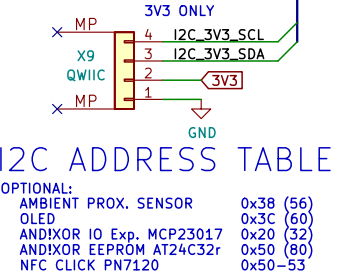
SPI CHIP SELECT PULL-UPS



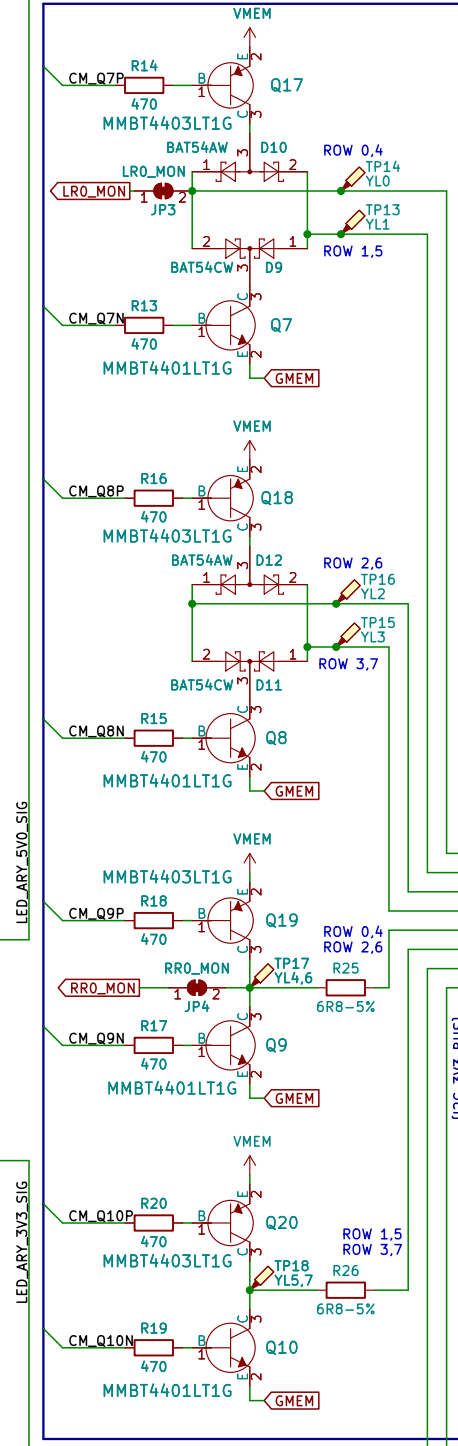
SAO #1 SIMPLE ADD-ONS



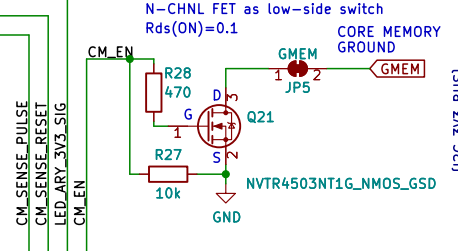
QWIC I2C



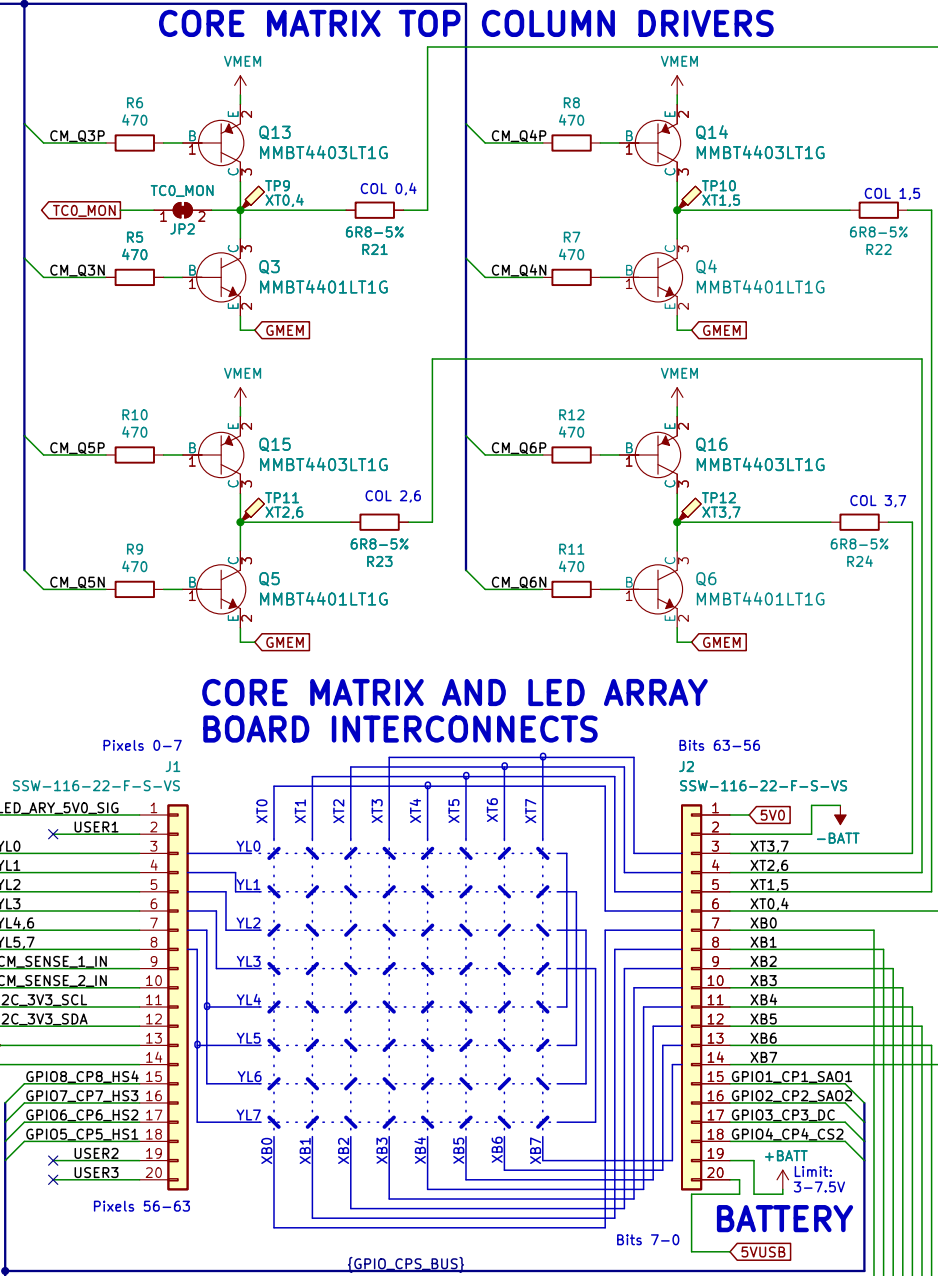
CORE MATRIX ROW DRIVERS



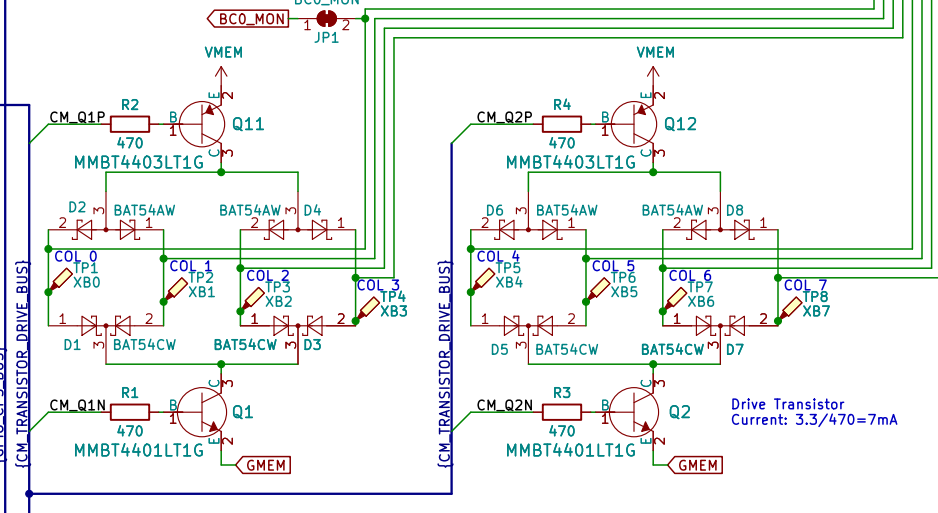
CORE MATRIX ENABLE



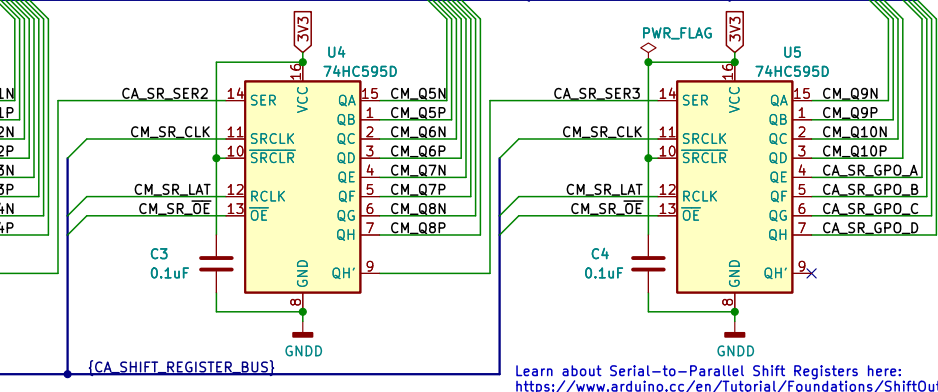
CORE MATRIX DRIVER



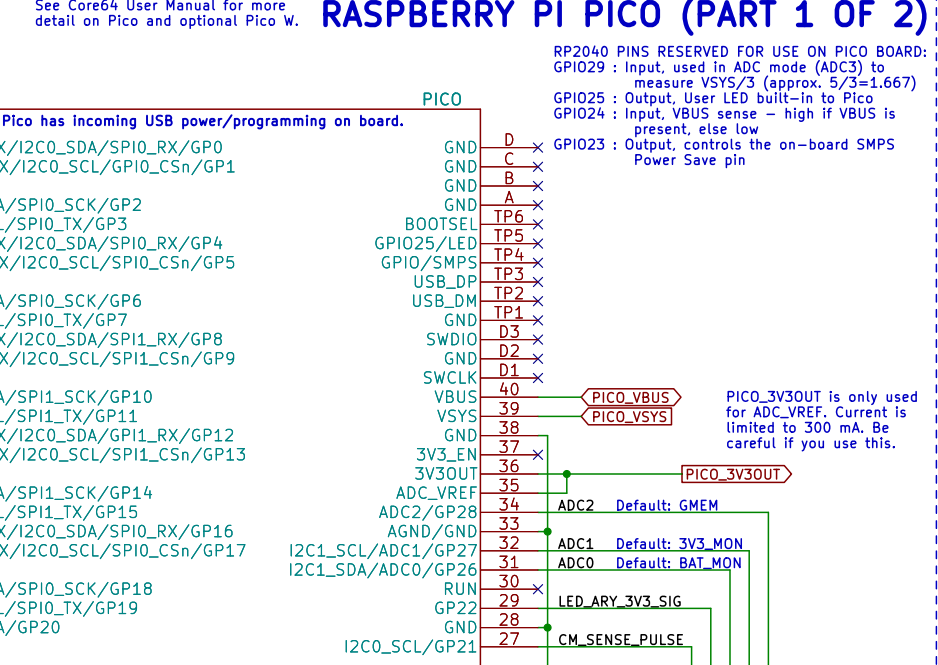
CORE MATRIX BOTTOM COLUMN DRIVERS



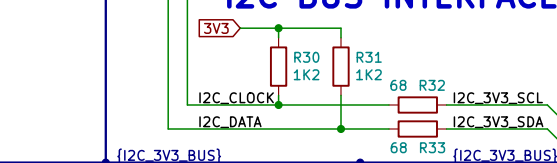
CM DRIVER IO EXPANDER



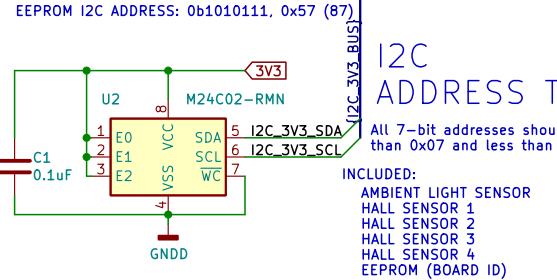
PICO MICROCONTROLLER RASPBERRY PI PICO (PART 1 OF 2)



I2C BUS INTERFACE



BOARD ID AND S/N



I2C ADDRESS TABLE

Device	Address
AMBIENT LIGHT SENSOR	0x29 (47)
HALL SENSOR 1	0x30 (48)
HALL SENSOR 2	0x31 (49)
HALL SENSOR 3	0x32 (50)
HALL SENSOR 4	0x33 (51)
EEPROM (BOARD ID)	0x57 (87)

All non-polarized capacitors are X7R or X5R ceramic unless otherwise noted.

Visit www.Core64.io for information on assembly and optional features.

Please read the Core64 User Guide for more details.

Concept and design by Andy Geppert • www.MachineIdeas.com

Sheet: /

File: Core64_LB.kicad_sch

Title: Core64 Logic Board - Raspberry Pi Pico RP2040

Size: C Date: 2023-03-19 Rev: 0.8

KiCad E.D.A. eschema (6.0.7-1) Id: 1/1