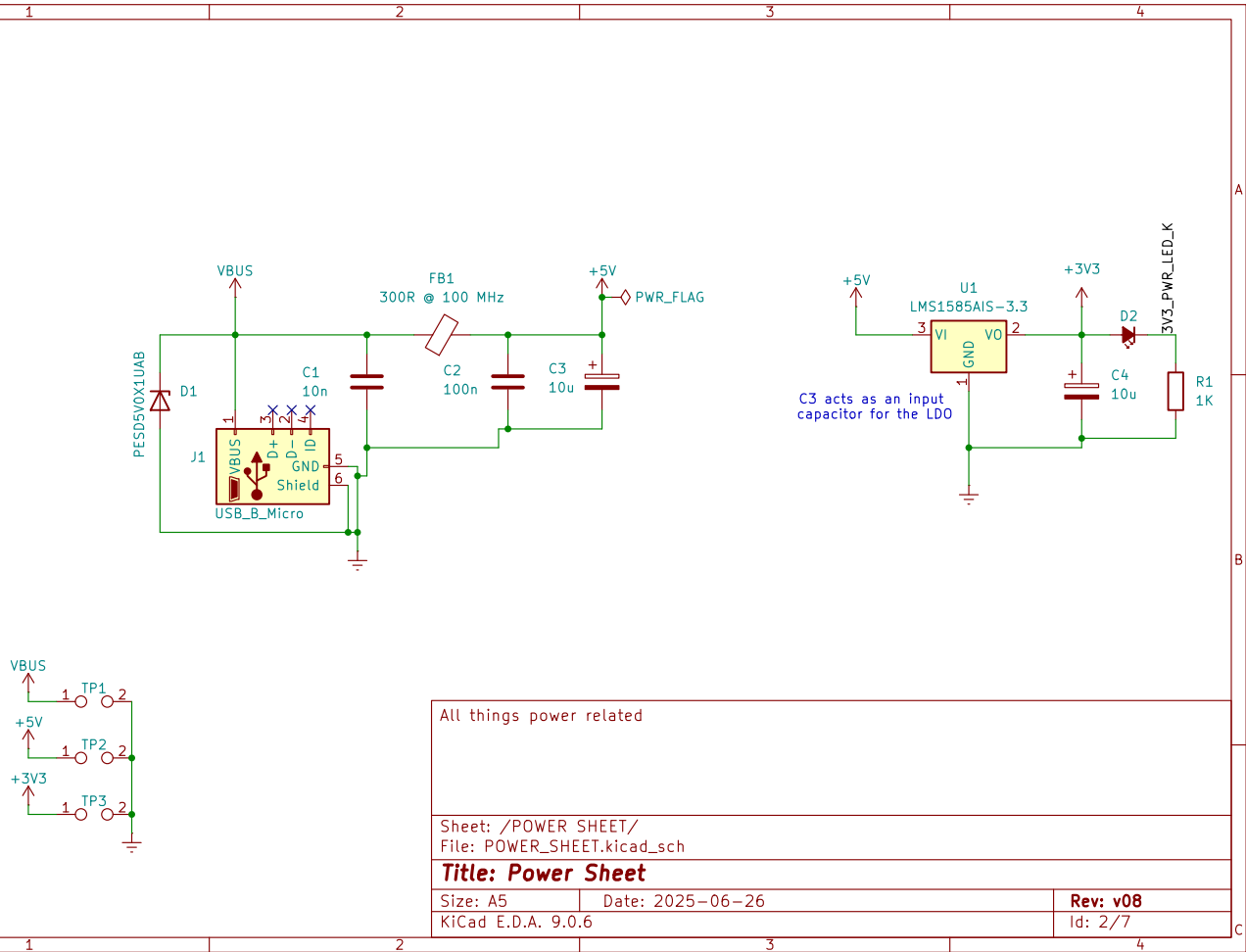
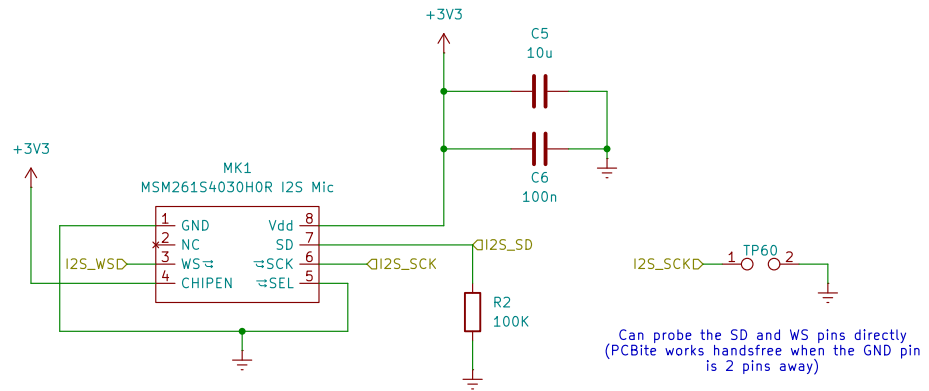


Sheet: /		
File: spekky_matrix.kicad_sch		
Title: Spekky Matrix Schematic		
Size: A5	Date: 2026-01-04	Rev: v26
KiCad E.D.A. 9.0.6		Id: 1/7





Same as Fermion I2S mic breakout board

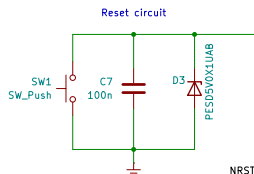
Sheet: /I2S MIC/
File: I2S_MIC.kicad_sch

Title: I2S Mic

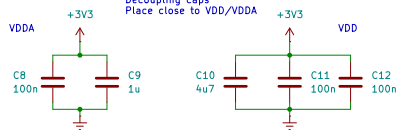
Size: A5 Date: 2026-01-04
KiCad E.D.A. 9.0.6

Rev: v03
Id: 3/7

Recommended external reset circuit:
via DS12589 Rev 6 (STM32G4x datasheet)
(plus additional ESD protection)

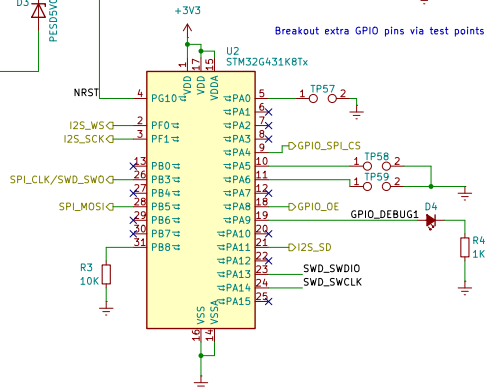


Decoupling caps.
Place close to VDD/VDDA



GPIO_DEBUG1 TP56

Breakout extra GPIO pins via test points



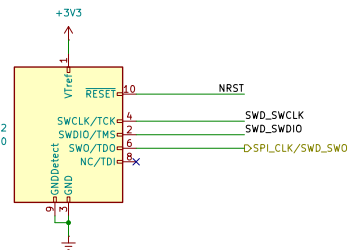
I2S Fsamp calculation: via STM32G431x reference manual

$Fs_{amp} = FI2sclock / [(64)(2(I2SDIV + ODD))]$

Currently FI2sclock is set to the HCLK * APB prescaler (HSI clock, 16 MHz)

(64 as DATALEN != 0b00, instead SD out is 24-bits therefore CHLEN = 1, otherwise replace 64 w/ 32)

J2
Conn_ARM_TAG_SWD_10



On Nucleo32-STM32G431KB devices PF0 and PF1 are disconnected.
SB11 and SB8 must be connected for this schematic to work.
Decoupling capacitor info can be found on datasheet and application note AN5093
No ADC therefore tying VDDA to VDD and GND to GND

Sheet: /STM32 MCU/
File: STM32_MCU.kicad_sch

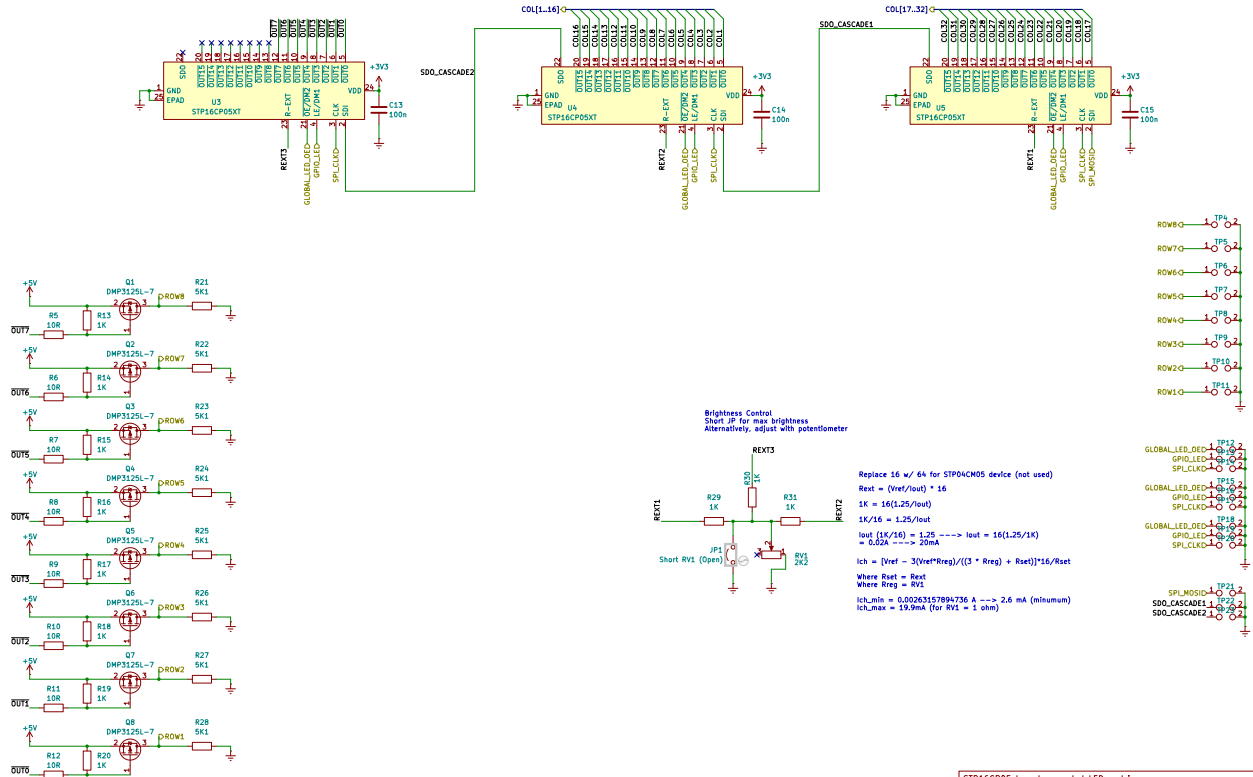
Title: STM32G431Kx Schematic

Size: A4 Date: 2025-11-01
KiCad E.D.A. 9.0.6

Rev: v10
Id: 4/7

Cascade Direction

Last (in chain) <--- First (in chain)



STP16CP05 based cascaded LED matrices

Sheet: /LED DRIVING/

File: LED_DRIVING.kicad_sch

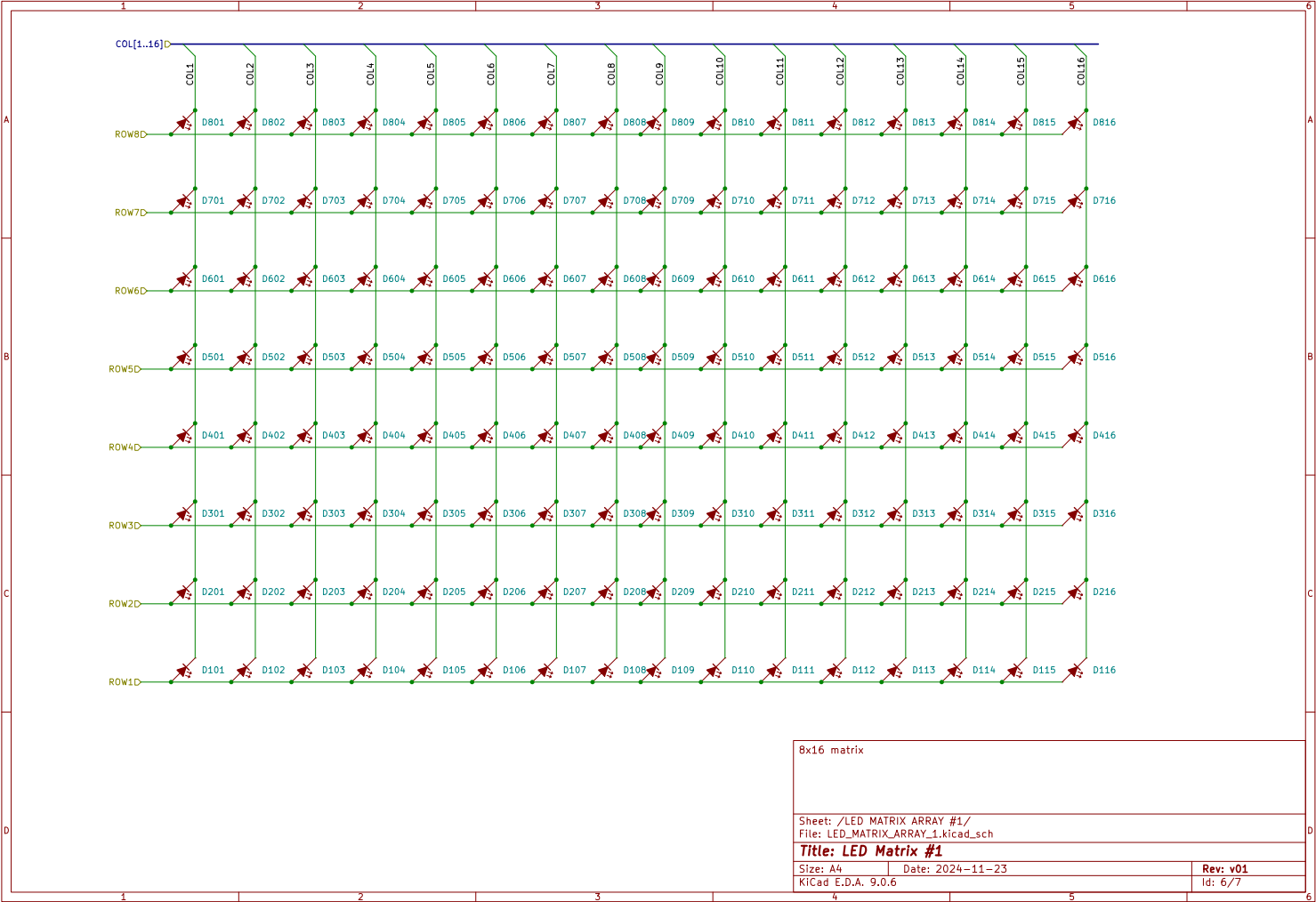
Title: 8x32 LED Matrix

Site: A3 | Date: 2025-11-01

KiCad E.D.A. 9.0.6

Rev: v08

Id: 5/7



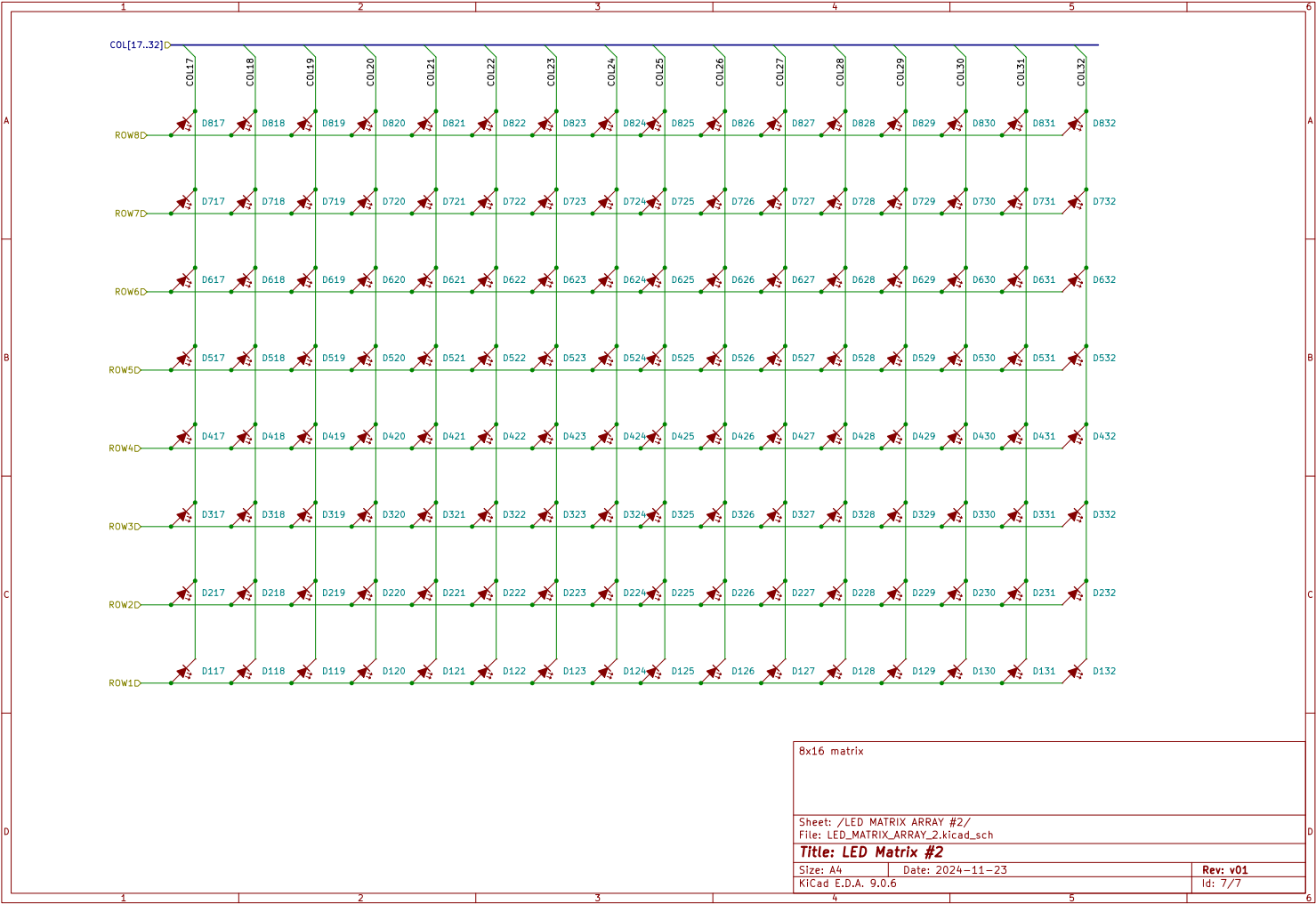
8x16 matrix

Sheet: /LED MATRIX ARRAY #1/
File: LED_MATRIX_ARRAY_1.kicad_sch

Title: LED Matrix #1

Size: A4 Date: 2024-11-23
KiCad E.D.A. 9.0.6

Rev: v01
Id: 6/7



8x16 matrix

Sheet: /LED MATRIX ARRAY #2/
File: LED_MATRIX_ARRAY_2.kicad_sch

Title: LED Matrix #2

Size: A4 Date: 2024-11-23
KiCad E.D.A. 9.0.6

Rev: v01
Id: 7/7