



SMALL EMERGE COMMON USER INTERFACE

Changelog:

SCH Q26038-001 REV A :
Based off Q26034-003 Design.
PCB Q25086-001

SCH Q26038-001 REV B :
PCB Q25086-002

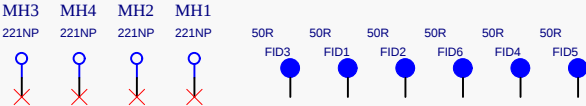
CHANGE HARDWARE REV BITS TO 0001.
CHANGE LCD CONNECTOR TO OMRON.
SWAP SPI0_MISO AND SPI0_MOSI.
DELETE CLK RESISTOR ON SD CARD SLOT.
CHANGE CONNECTOR REFERENCE DESIGNATORS TO MATCH T600 INTEGRATED TELEMETRY BOARD.
SWAP RXD AND TXD ON DEBUG SERIAL CONNECTOR, OMIT 3.3V CONNECTION THERE.
FIX NAME SWAP SPI1_CS0 AND SPI1_CS1.
CHANGE TELEMETRY CONNECTOR PIN 13 TO WIFI SOFTWARE RESET.
CHANGE LCD SIGNAL RESISTOR PACKS TO DISCRETE 0402'S.
DELETE OPTION FOR SDIO WIFI INTERFACE.
ADD RTC_nINT TO A GPIO0 PIN FREED UP FROM SDIO WIFI INTERFACE.
ADD A/D INPUTS FROM SHUNT AMP ON TELEM BD.
CHANGED PULLUP RESISTOR ON 32768HZ CLOCK TO 10K.
ADDED DIGITAL MONITORING OF KEYSWITCH AND CHARGER POWER AND SYSTEM_UP.
MOVED SPARE_RADIO POWER SIGNAL.
CHANGED LSD DIODES TO ES1 TO LOWER COST.
CHANGED C193 FROM 470 TO 1500uF.
CHANGED R6 BACK TO 10K.

SCH Q26038-001 REV C :
PCB Q25086-003

CHANGE HARDWARE REV BITS TO 002
DELETE R159 SERIES RESISTOR ON A15.
ADD C343-C346 ON KEYPAD INPUTS FOR NOISE SUPPRESSION.
REMOVE FRAM OPTION. ADD INFINEON TPM IC.
ADD D30-D32 IN POWER FAIL CKTS.

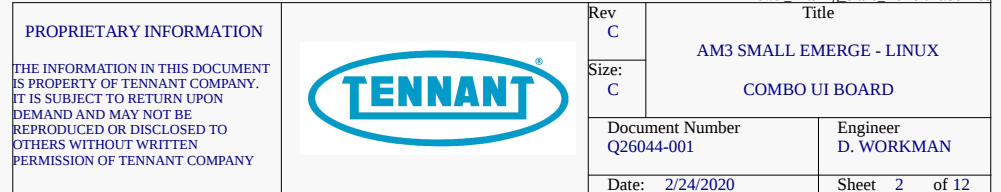
PART NUMBERS FOR REFERENCE ONLY:
PRINTED CIRCUIT ASSEMBLY 1244465

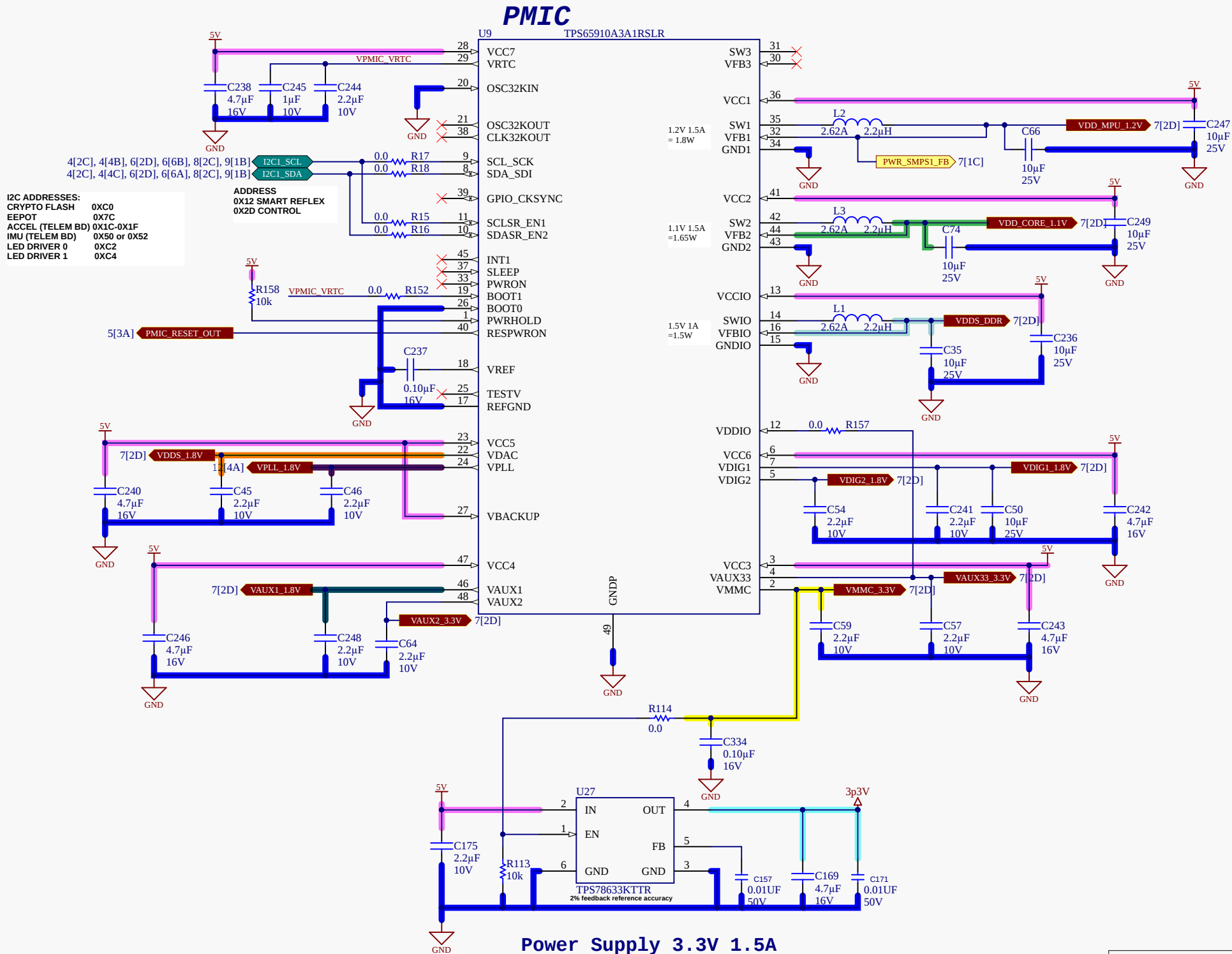
- FW1
FIRMWARE-MAIN IMAGE Q30109-001
- FW2
FIRMWARE-BOOTLOADER Q30TBD-001
- PCB1
PCB Q25086-003
- SCHEMATIC1
SCHEMATIC Q26044-001



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	Document Number Q26044-001	Engineer D. WORKMAN
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POWER SUPPLY +5V, 75VIN, 3A





SETTINGS FOR VDD_MPU POWER:
FROM TABLE 5.7 OF SPRS717K

MIN.	NOM.	MAX.	FREQ.
1.272V	1.325V	1.378V	1000MHZ
1.210V	1.260V	1.326V	800MHZ
1.152V	1.200V	1.248V	720MHZ
1.056V	1.100V	1.144V	600MHZ AND LOWER, PMIC DEFAULT.

TPS65910 Power Supply AM335x Power Rail Voltage

VAUX2 (300mA)	VDDSHV1, 3, 5, 6 (500mA) 3.3V (rails that are 3.3V)
VDIG1 (300mA)	VDDSHV1, 3, 5, 6 (500mA) 1.8V (rails that are 1.8V)
VMMC (300mA)	VDDSHV4 (60mA) & VDDSHV2 1.8V/3.3V
VDD2 SMPS (1500mA)	VDD_CORE (1000mA) 1.1V
VDD1 SMPS (1500mA)	VDD_MPU (1500mA) 1.2V
No supply needed	VDD_RTC 1.1V
VRTC	VDD5_RTC (10mA) 1.8V
VIO_SMPS (1000mA)	VDD5_DDR (200mA) 1.8V (or 1.5V for DDR3)
VIO_SMPS (1000mA)	VREFSSTL (10mA) 0.9V or 0.75V
VDAC (150mA)	VDD5 (100mA) 1.8V
VDIG2 (300mA)	VDD5_SRAM_CORE_BG (40mA) 1.8V
VDIG2 (300mA)	VDD5_SRAM_MPU_BB (40mA) 1.8V
VDIG2 (300mA)	VDD5_PLL_DDR (25mA) 1.8V
VDIG2 (300mA)	VDD5_PLL_CORE_LCD (25mA) 1.8V
VDIG2 (300mA)	VDD5_PLL_MPU (25mA) 1.8V
VDIG2 (300mA)	VDD5_OSC (10mA) 1.8V
VAUX1 (300mA)	VDDA1P8V_USB0/1 (50mA) 1.8V
VAUX33 (150mA)	VDDA3P3V_USB0/1 (10mA) 3.3V
VAUX33 (150mA)	USB_VBUS0/1 3.3V
VPLL (50mA)	VDDA_ADC 1.8V
VDD3 SMPS (100mA)	Not Used -
VIO_SMPS (1000mA)	DDR2 SDRAM (320mA) 1.8V

Table 3: AM335x Power supplies from TPS65910A

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A

A

B

B

C

C

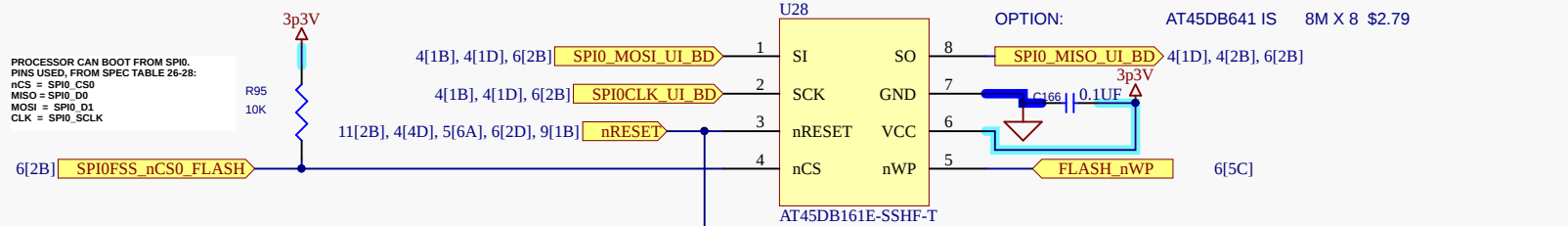
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D

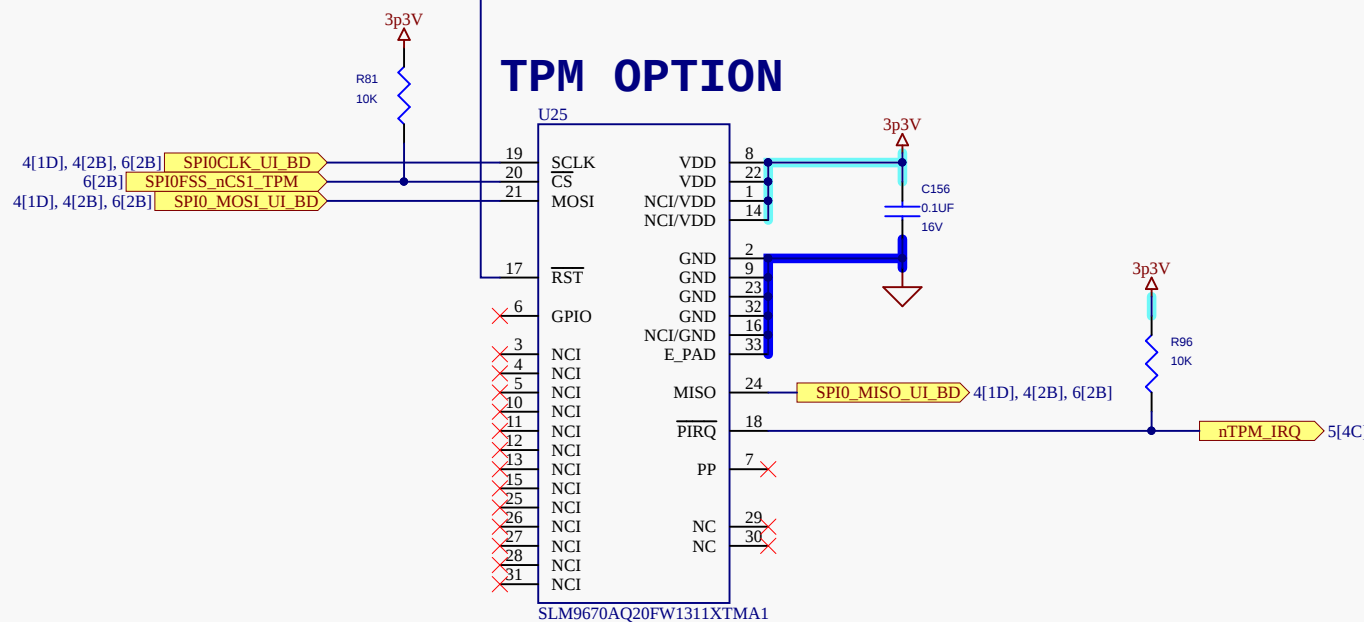
FLASH1

PREVIOUS BOARDS: AT45DB081 WAS 1M X 8 \$.89 <--DYLAN SAYS THIS MUCH FLASH IS ADEQUATE BY MOVING STUFF TO eMMC

THIS BOARD:	AT45DB161 IS	2M X 8 \$1.19
OPTION:	AT45DB321 IS	4M X 8 \$1.69 <--CHANGE TO THIS FOR PROTOTYPES
OPTION:	AT45DB641 IS	8M X 8 \$2.79

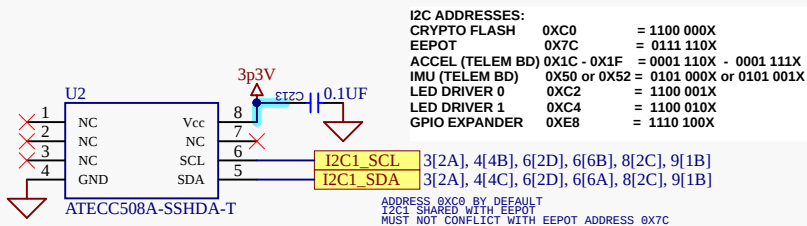
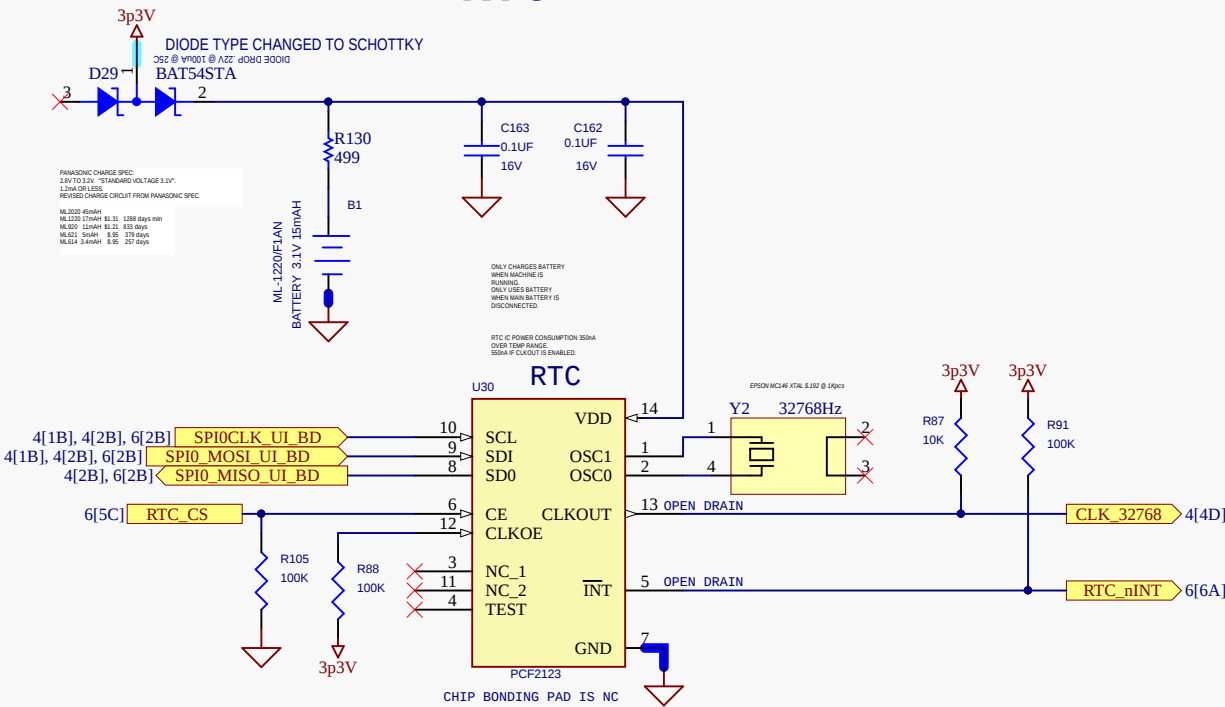


TPM OPTION

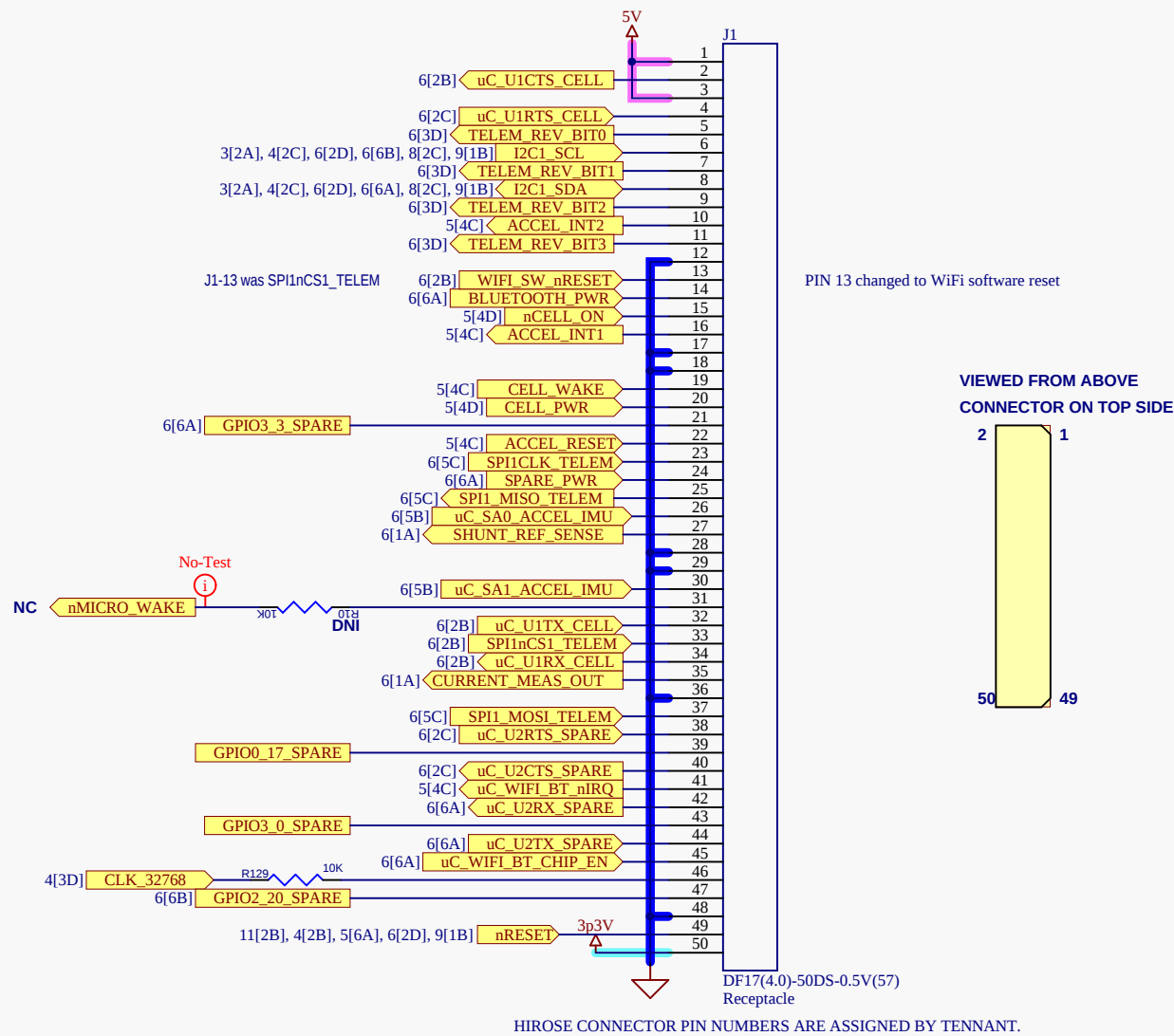


checked: SDO tristated on all SSI0 devices when deselected.

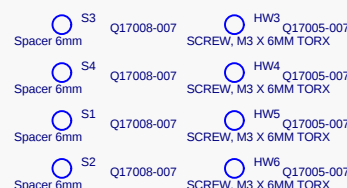
CRYPTO FLASH OPTION

**RTC**

TELEMETRY BOARD CONNECTION



HIROSE CONNECTOR PIN NUMBERS ARE ASSIGNED BY TENNANT

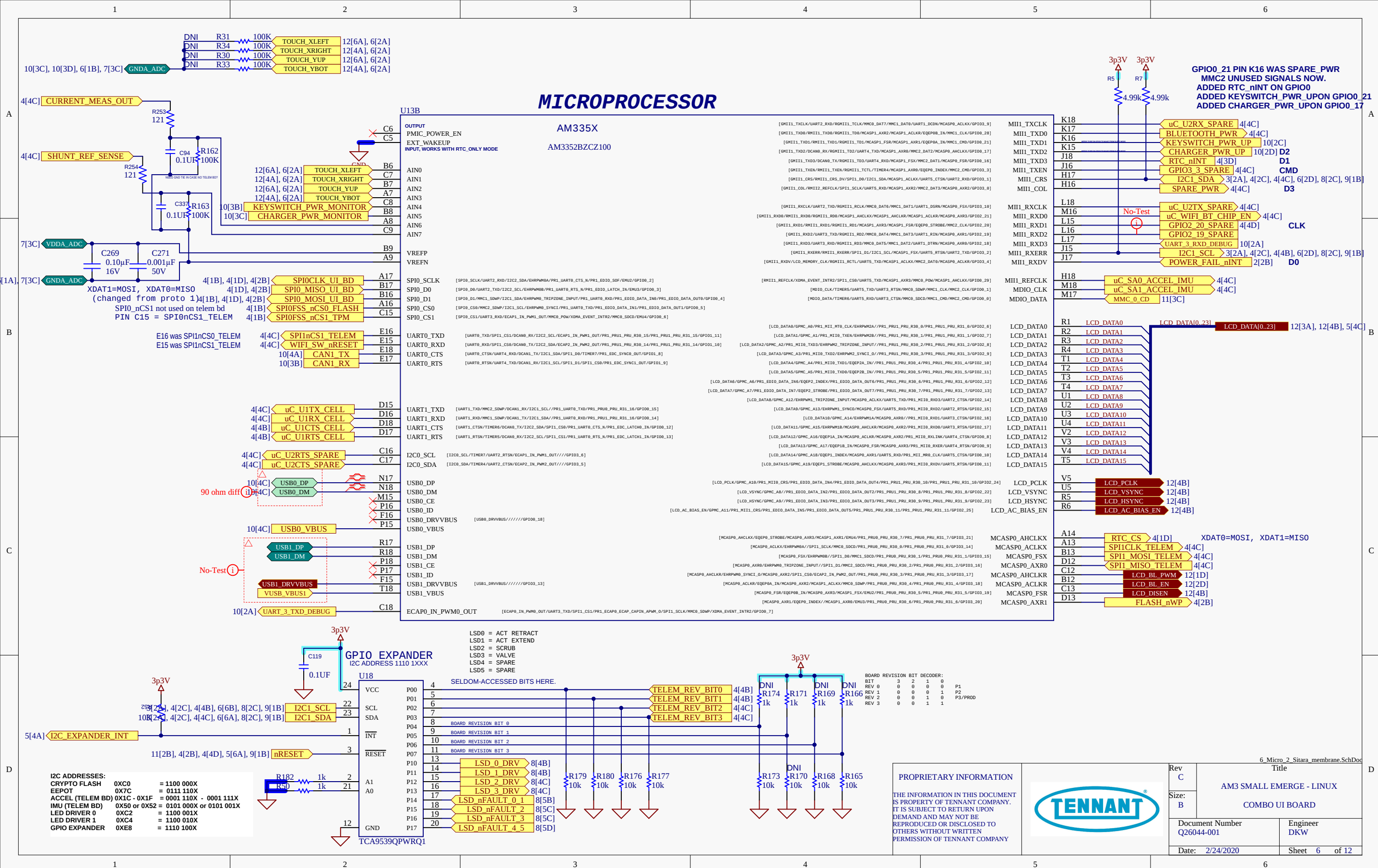


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A

A

B

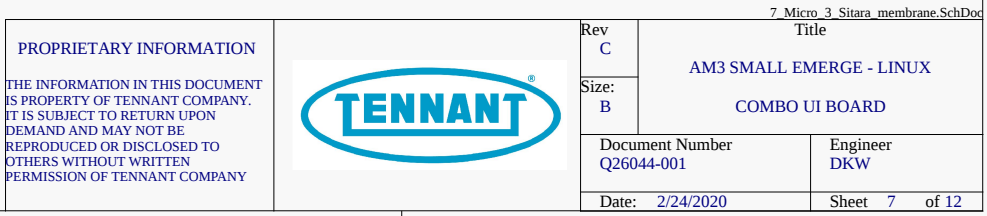
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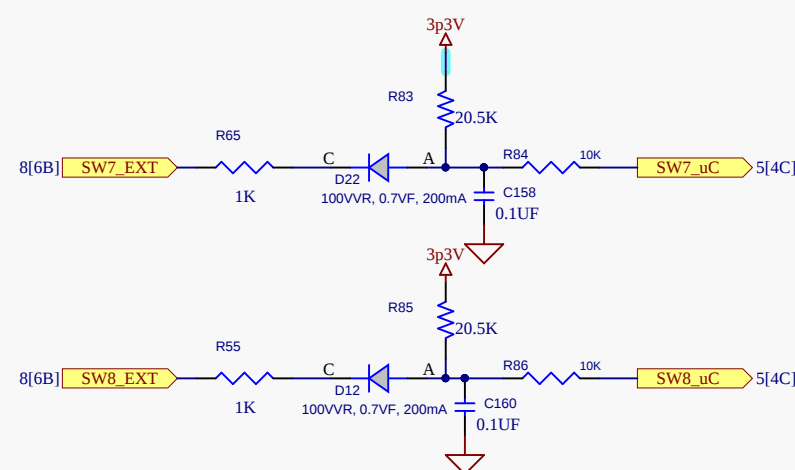
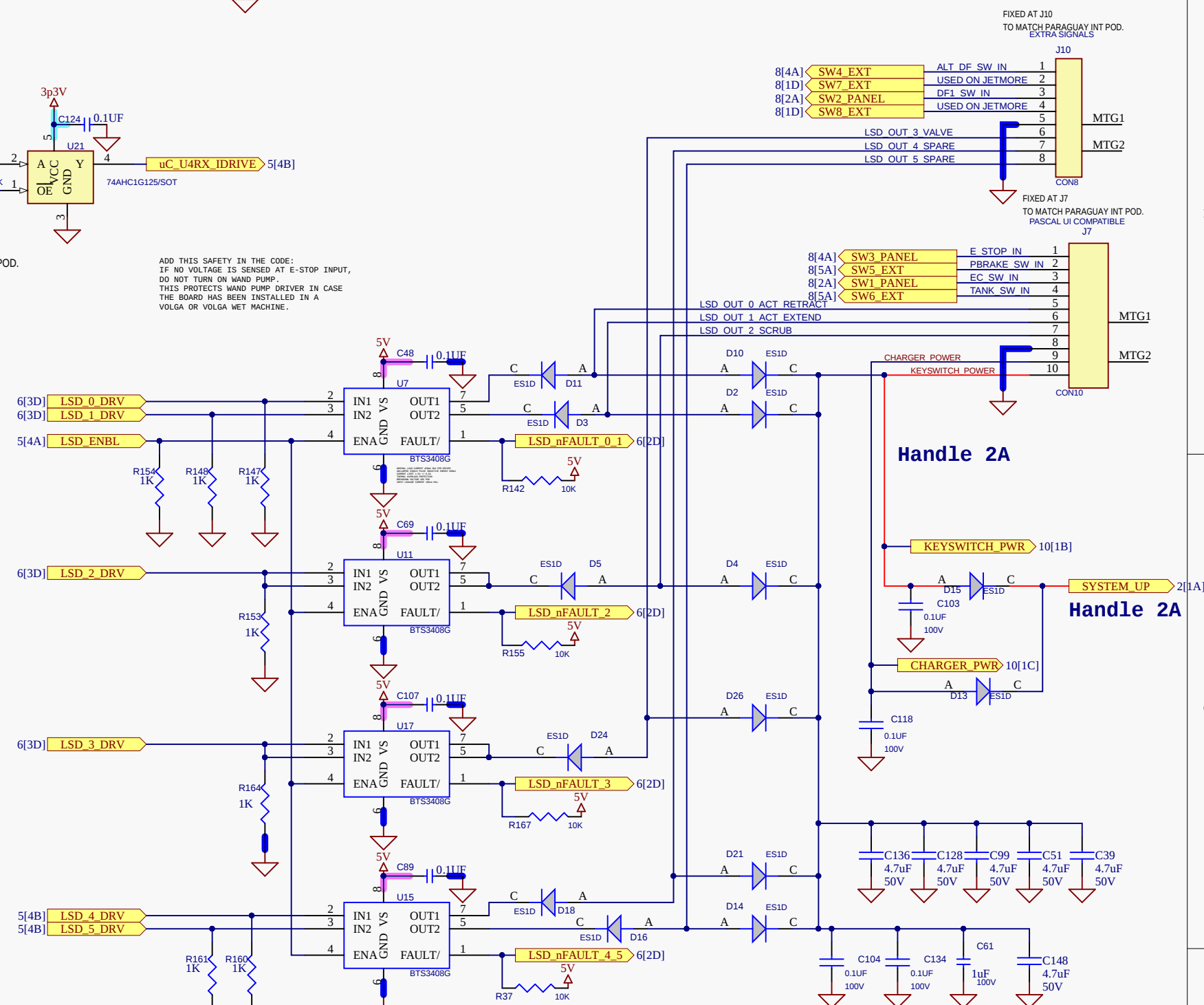
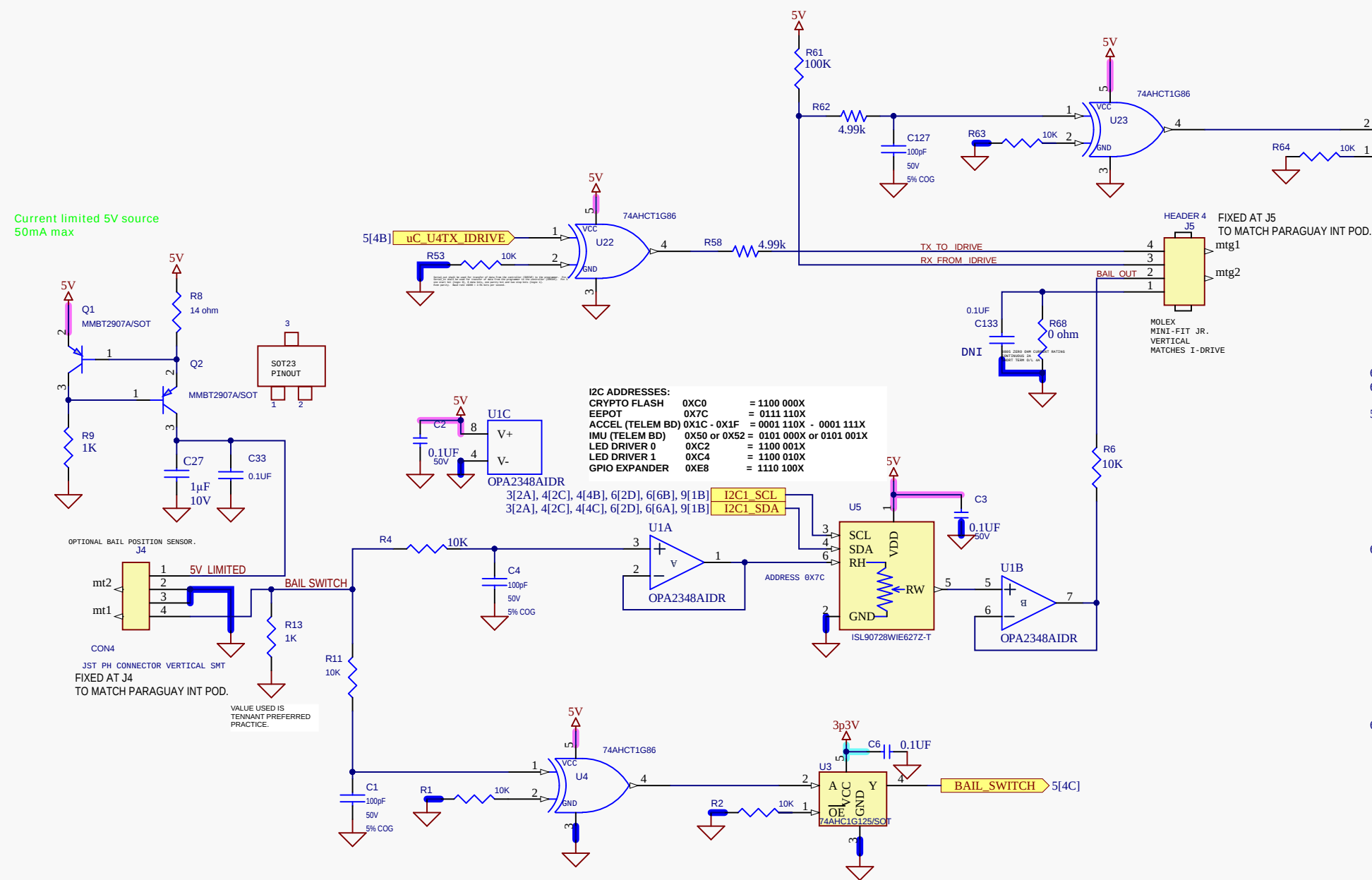
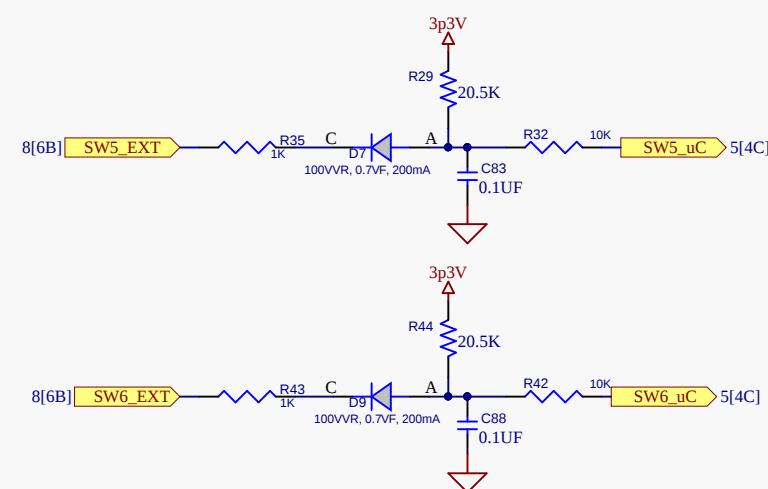
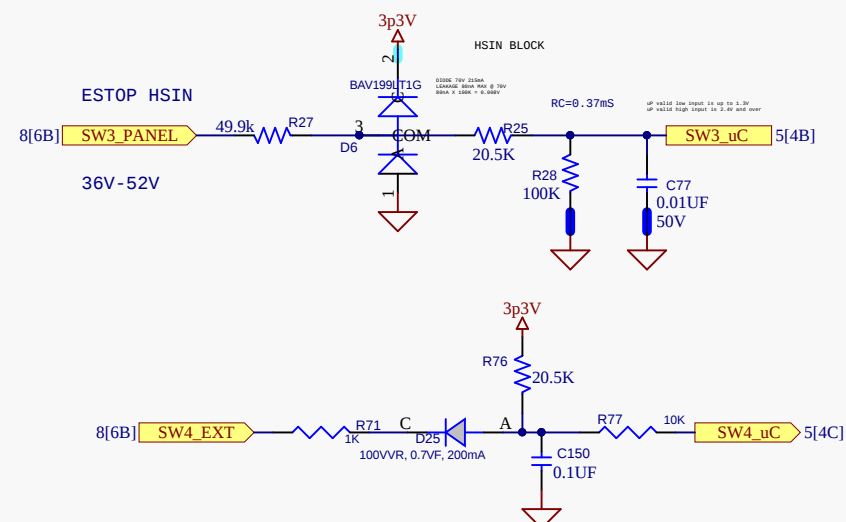
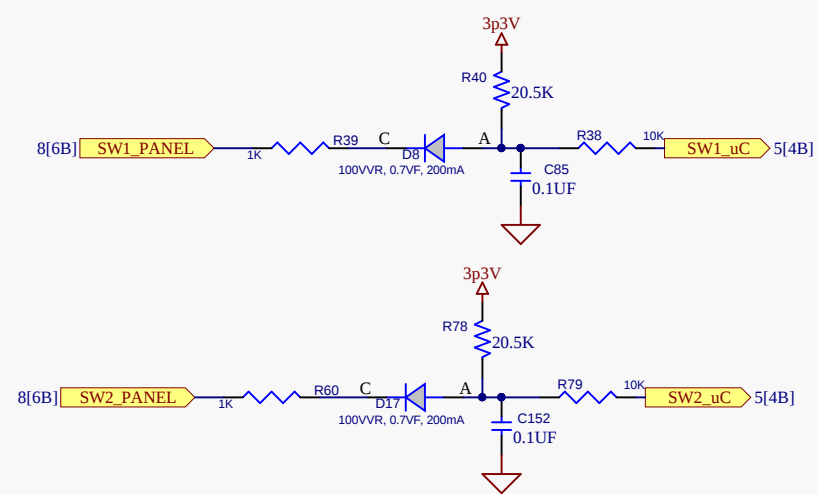
C

C

D

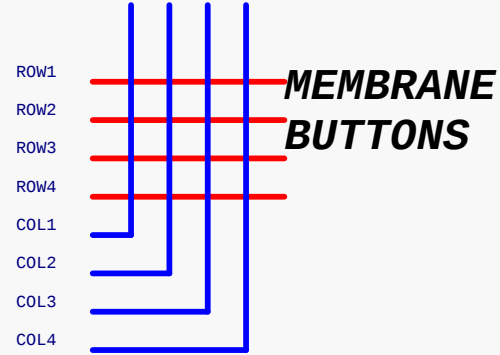
D



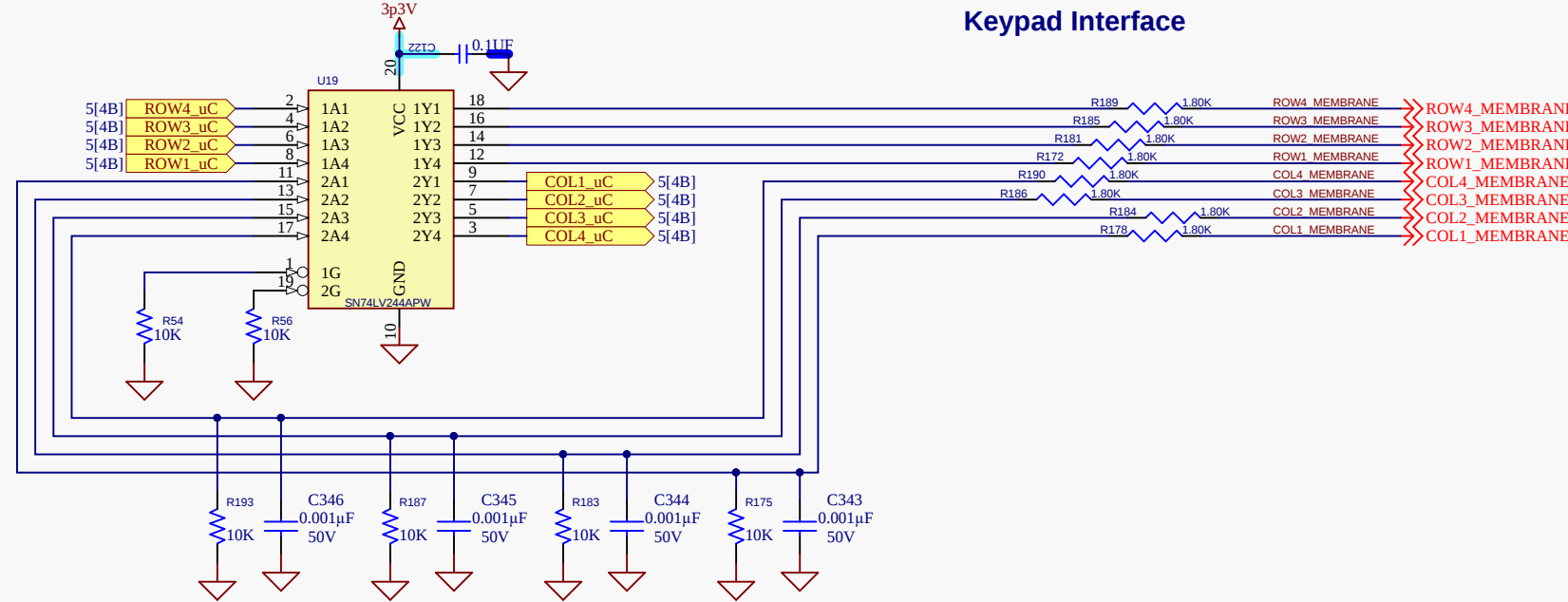


Keypad & LED interfaces

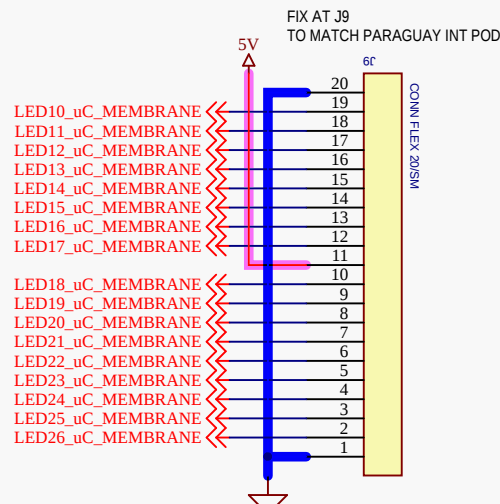
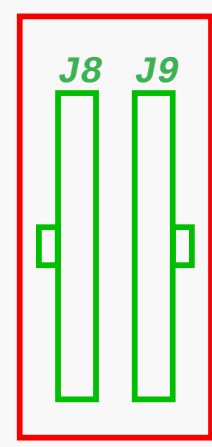
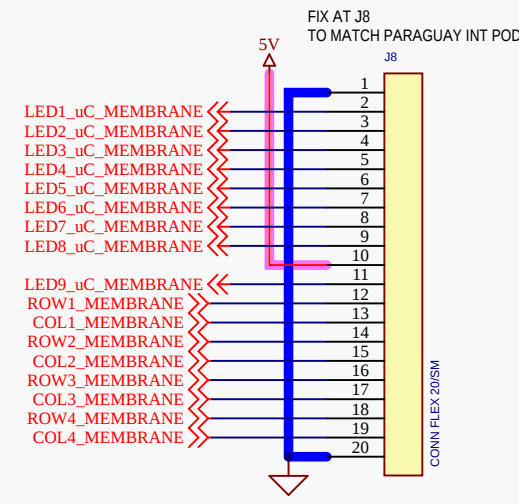
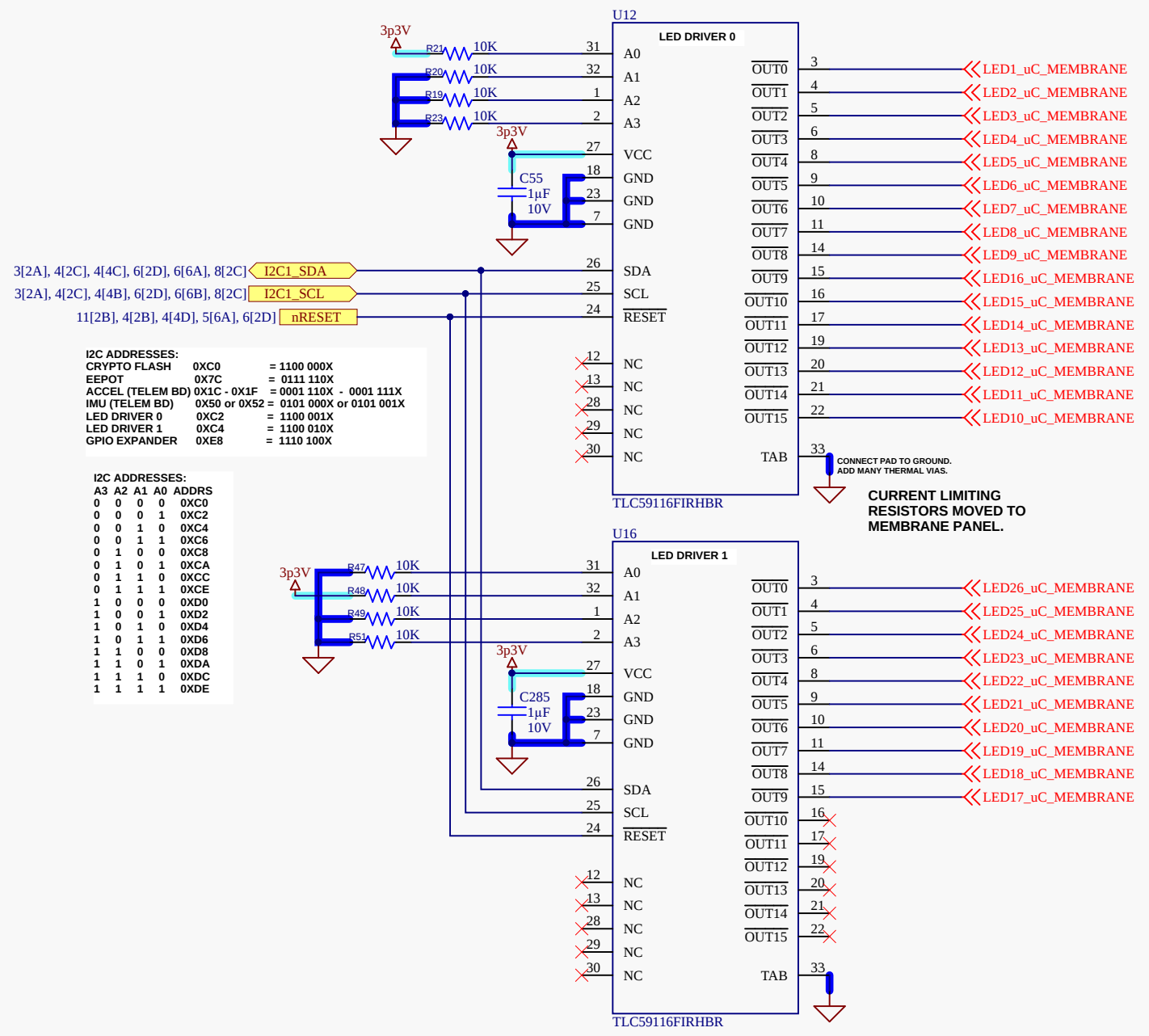
Conventional 4 x 4 scanned keyboard. CPU will output a logic "1" to the Rows one at a time, and scan the returning Cols for a key press. Pull-downs on the Cols insure a logic "0" if a key in that column is not pressed. 244 isolates the CPU from the keypad. Series resistors will protect the buffer.



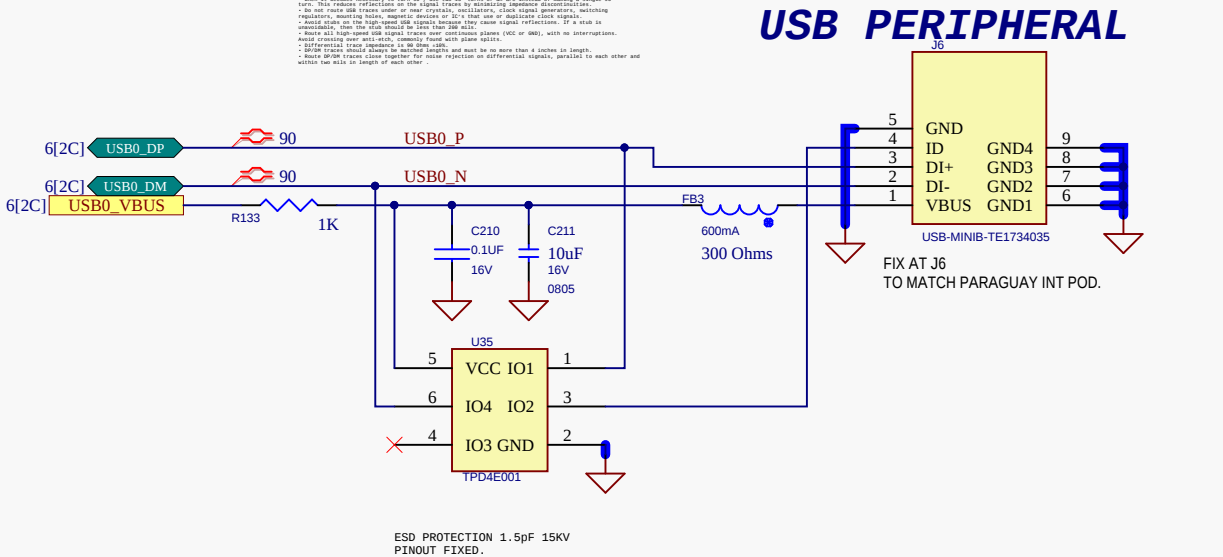
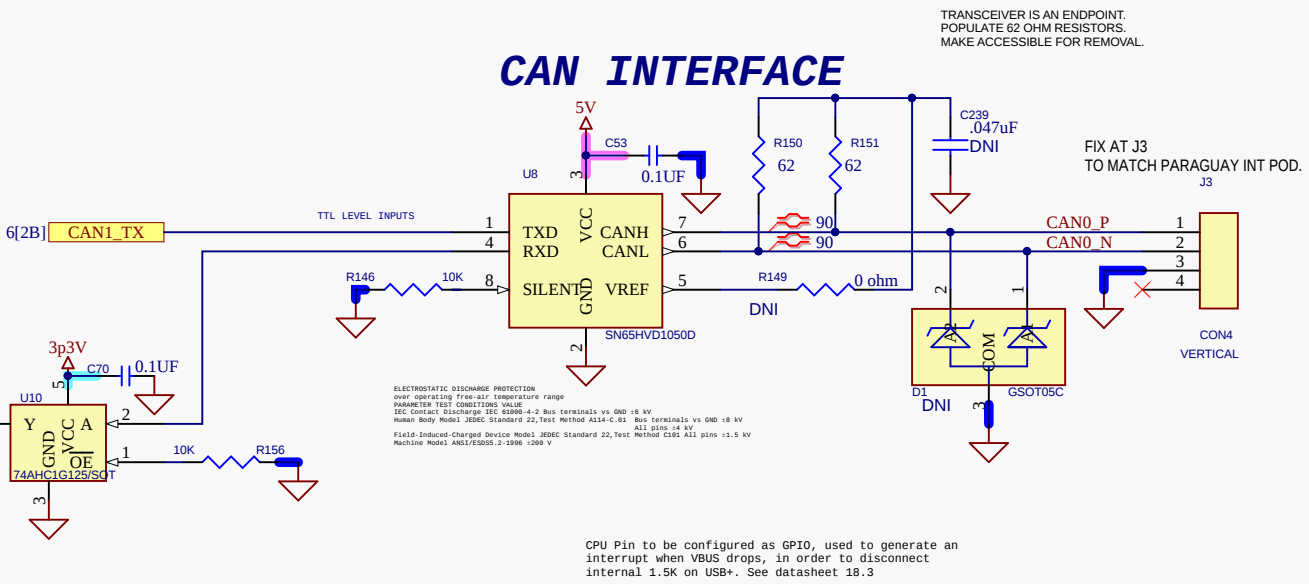
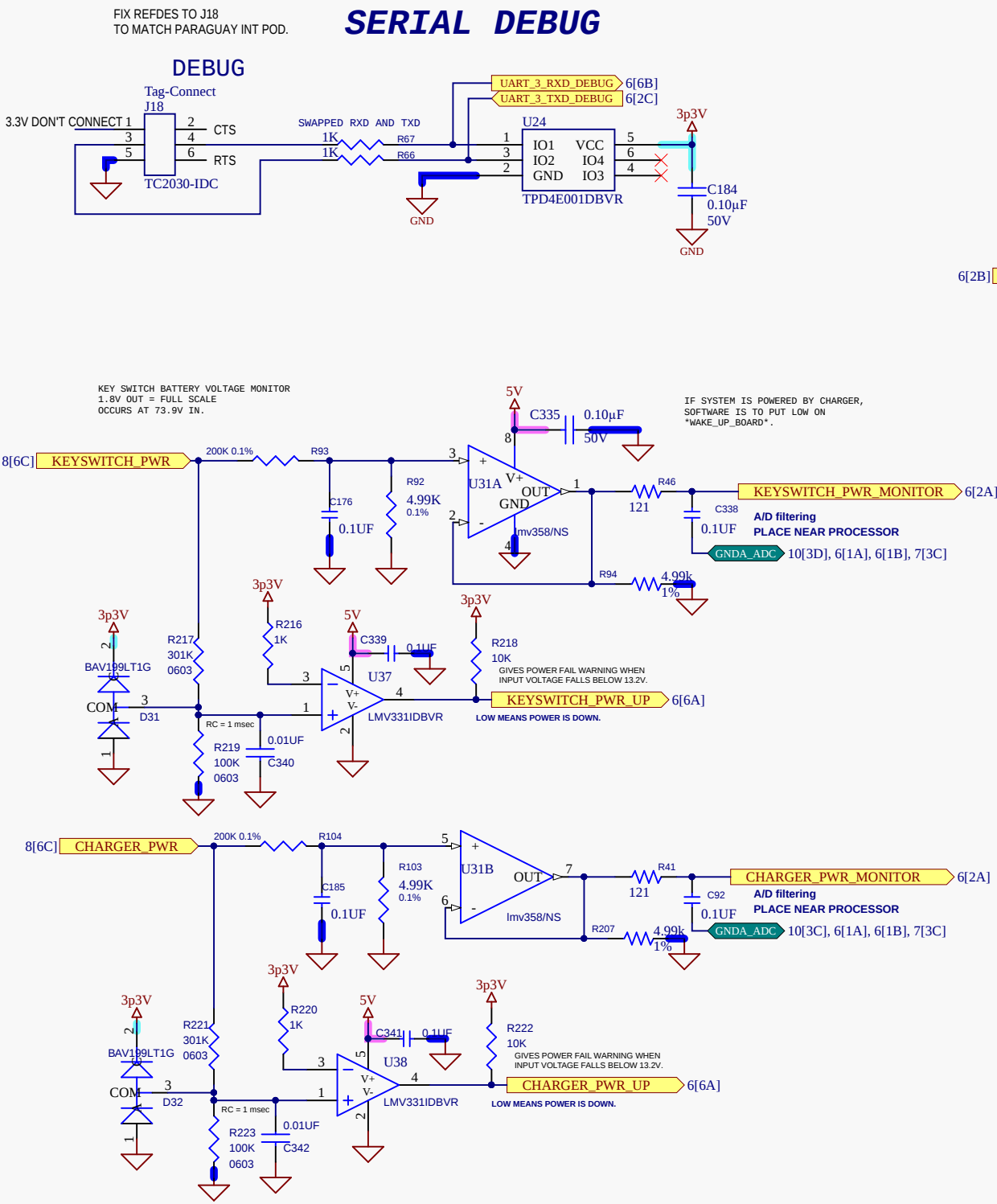
Keypad Interface



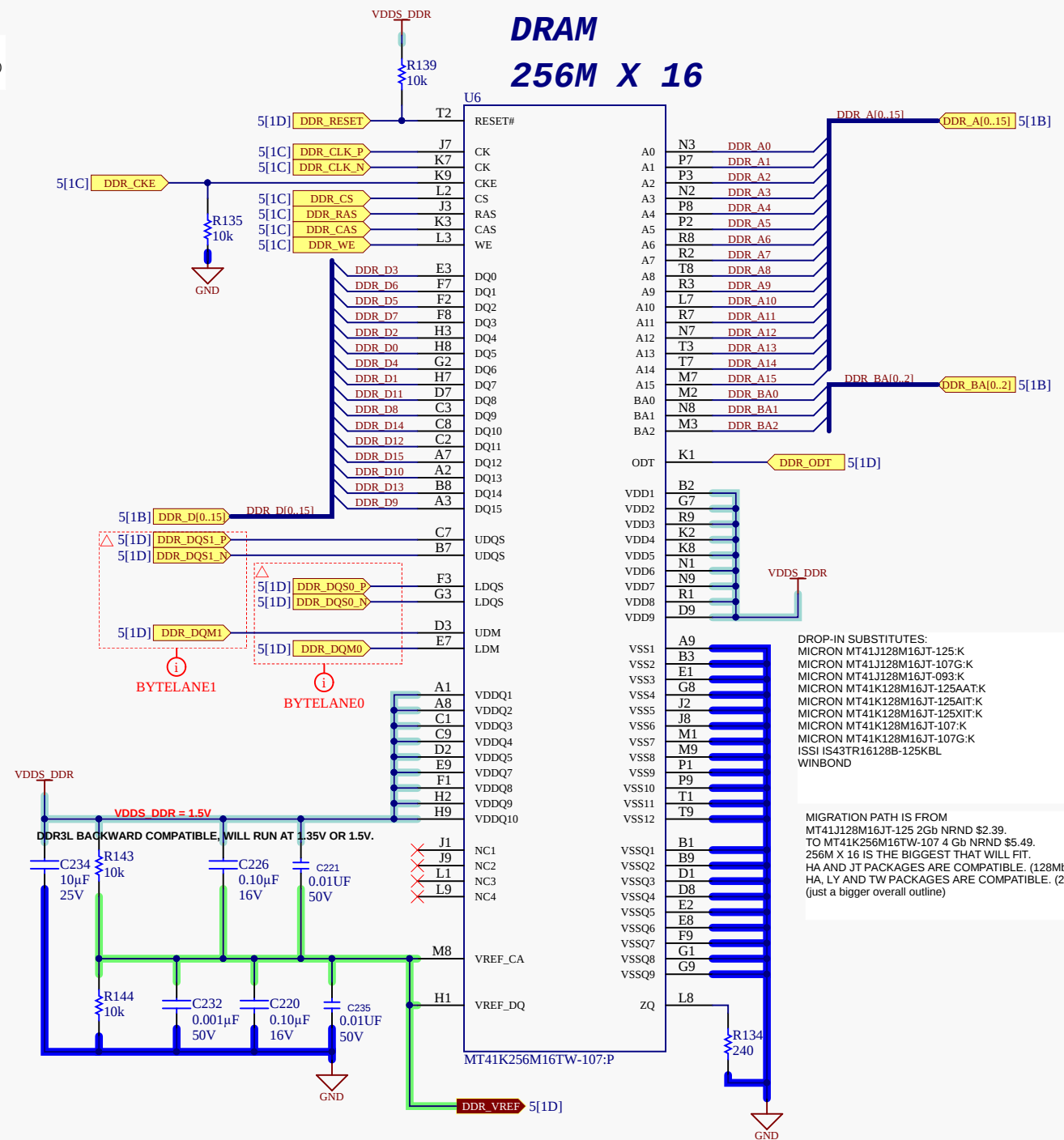
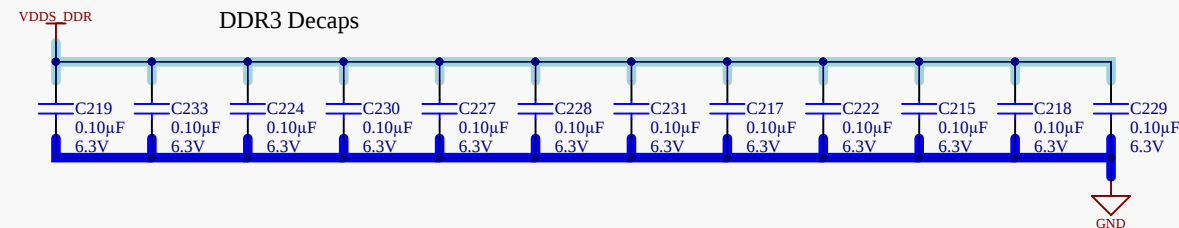
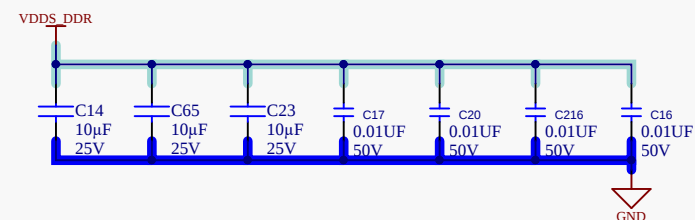
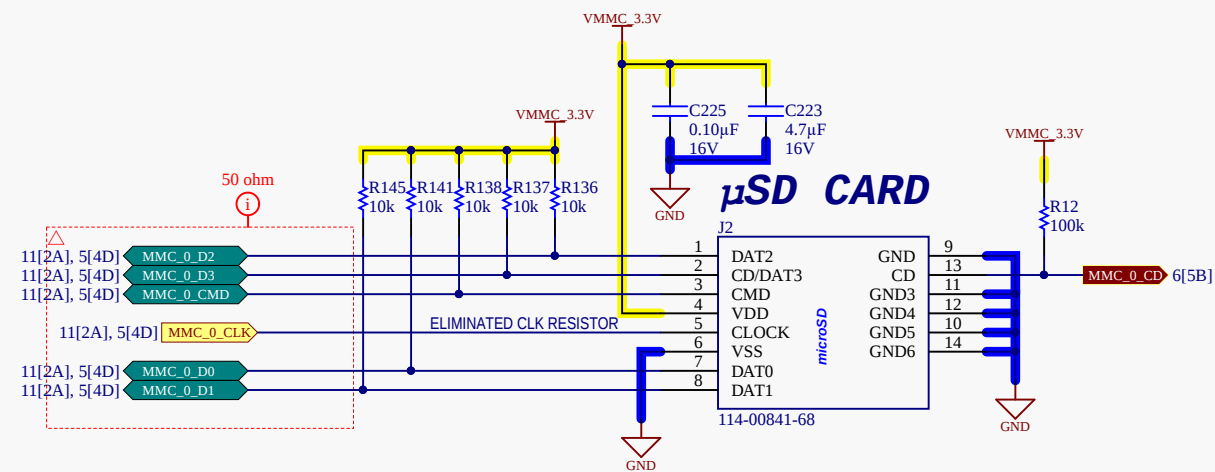
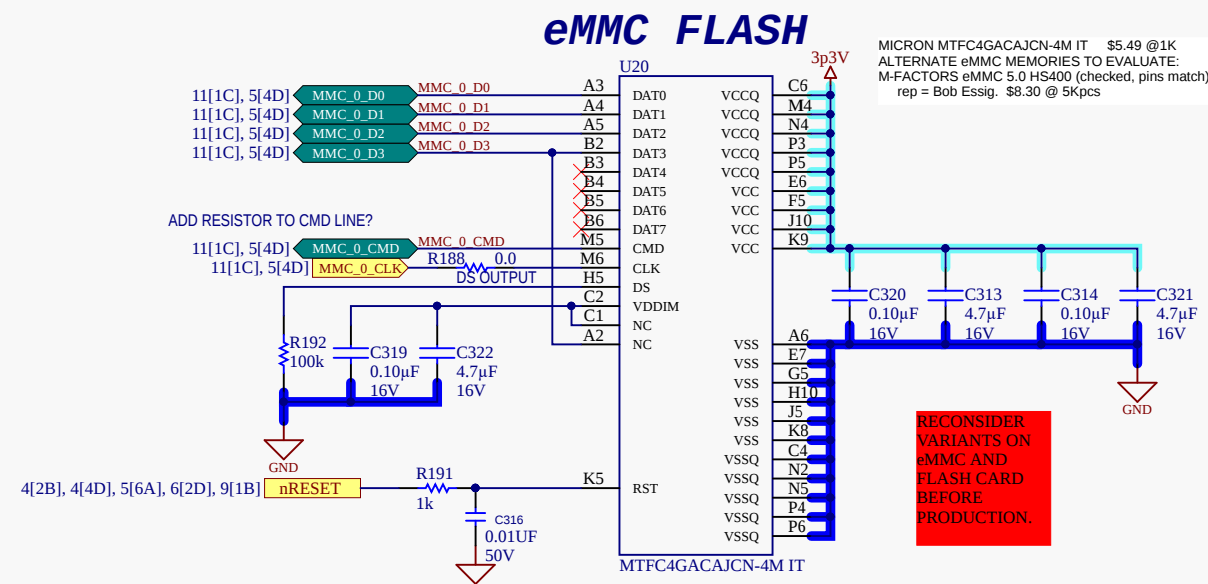
SINGLE POINT (RED) 19-217-R6C-P1Q2-3T 7mA 2.0Vf (412 ohms)	SINGLE POINT (GREEN) 19-217-67C-BK2L2VY/3T 5mA 1.95Vf TYP (590 ohms)	SINGLE POINT (YELLOW) 19-217UYC-S119-TR8 10mA 1.9Vf TYP (287 ohms)
SIDE SHOT (RED) 99-213-R6C-AR2S2B-2C 10mA 2.05Vf (287 ohms)	SIDE SHOT (BLUE) 99-113/BHC-AS1T1U/3T 20mA MAX 3.5Vf TYP (69.8 ohms)	SIDE SHOT (YELLOW) 19-213/Y2C-AS1T1B/3T 10mA 2.05Vf TYP (301 ohms)



INTERFACES



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DROP-IN SUBSTITUTES:
MICRON MT41J128M16JT-125-K
MICRON MT41J128M16JT-107G-K
MICRON MT41J128M16JT-093-K
MICRON MT41K128M16JT-125AATK
MICRON MT41K128M16JT-125A1T-K
MICRON MT41K128M16JT-125X1T-K
MICRON MT41K128M16JT-107K
MICRON MT41K128M16JT-1093-K
ISSI IS43TR1612B8-125KBL
WINBOND

MIGRATION PATH IS FROM
MT41J128M16JT-125 2Gb NRND \$2.39.
TO MT41K256M16TW-107 4 Gb NRND \$5.49.
256M X 16 IS THE BIGGEST THAT WILL FIT.
HA AND JT PACKAGES ARE COMPATIBLE. (128Mb)
HA, LY AND TW PACKAGES ARE COMPATIBLE. (256Mb)
(just a bigger overall outline)

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11_Memory_Sitara_membrane.SchDoc	
Rev	Title

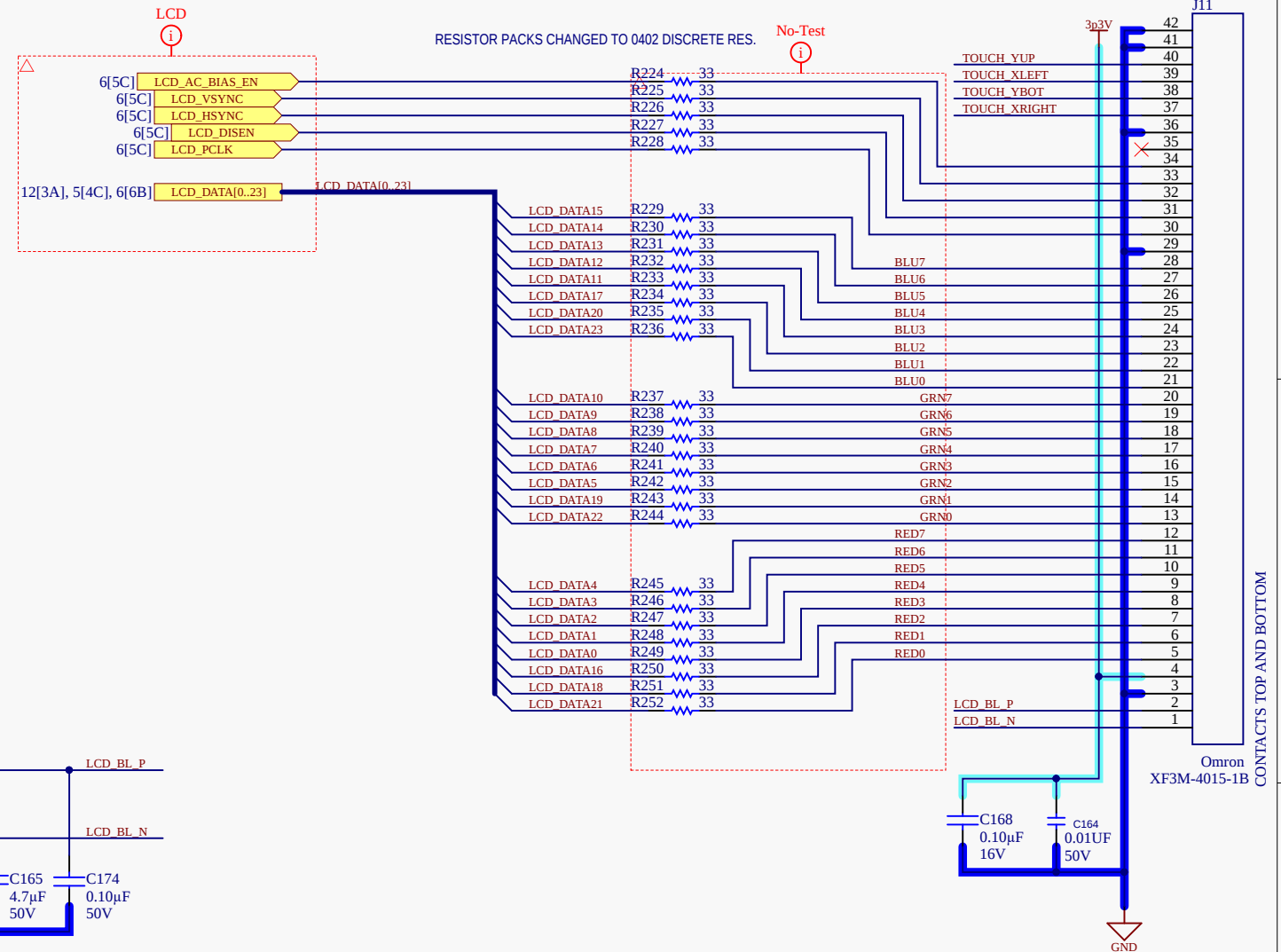
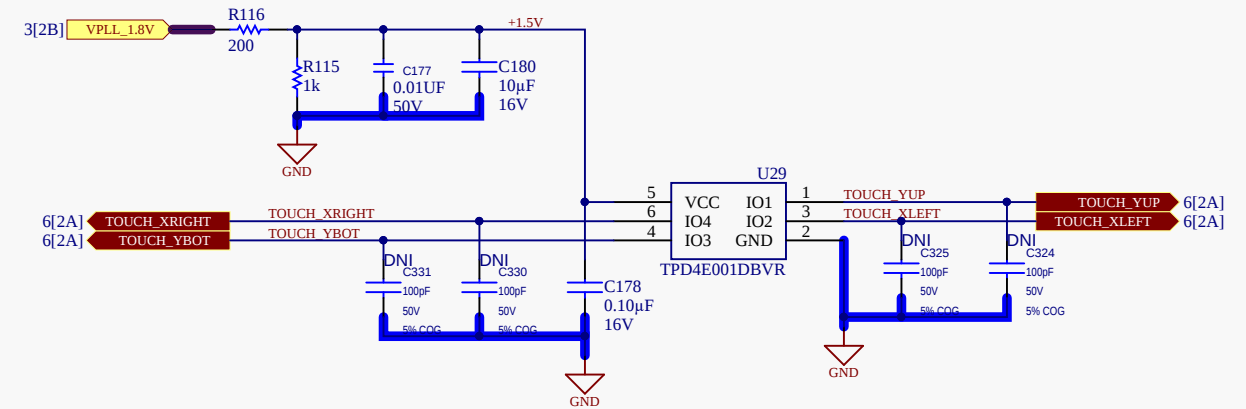
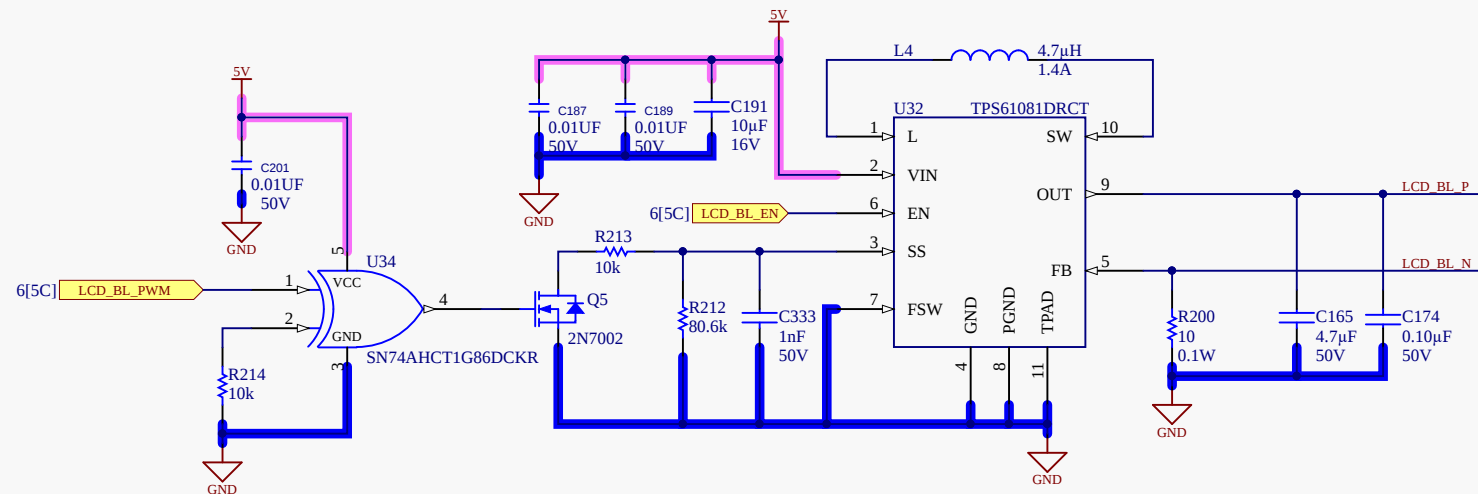
AM3 SMALL EMERGE - LINUX

Size.	B	COMBO UI BOARD
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DESIRED BOOT OPTIONS:
SYSBOOT(15:14) = 01 = 24MHZ XTAL
SYSBOOT(13:12) = 00 = NORMAL OPERATION
SYSBOOT(11:10) = 00 = NON MUXED DEVICE
SYSBOOT(9) = 0 = ECC DONE BY ROM
SYSBOOT(8) = 0 = 8 BIT DEVICE FOR XIP BOOT
SYSBOOT(7:6) = 00 = DONT CARE
SYSBOOT(5) = 0 = CLKOUT1 DISABLED
SYSBOOT(4:0) = 11000 = BOOT SEQUENCE SPIO, MMC0, USB0, UART0
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