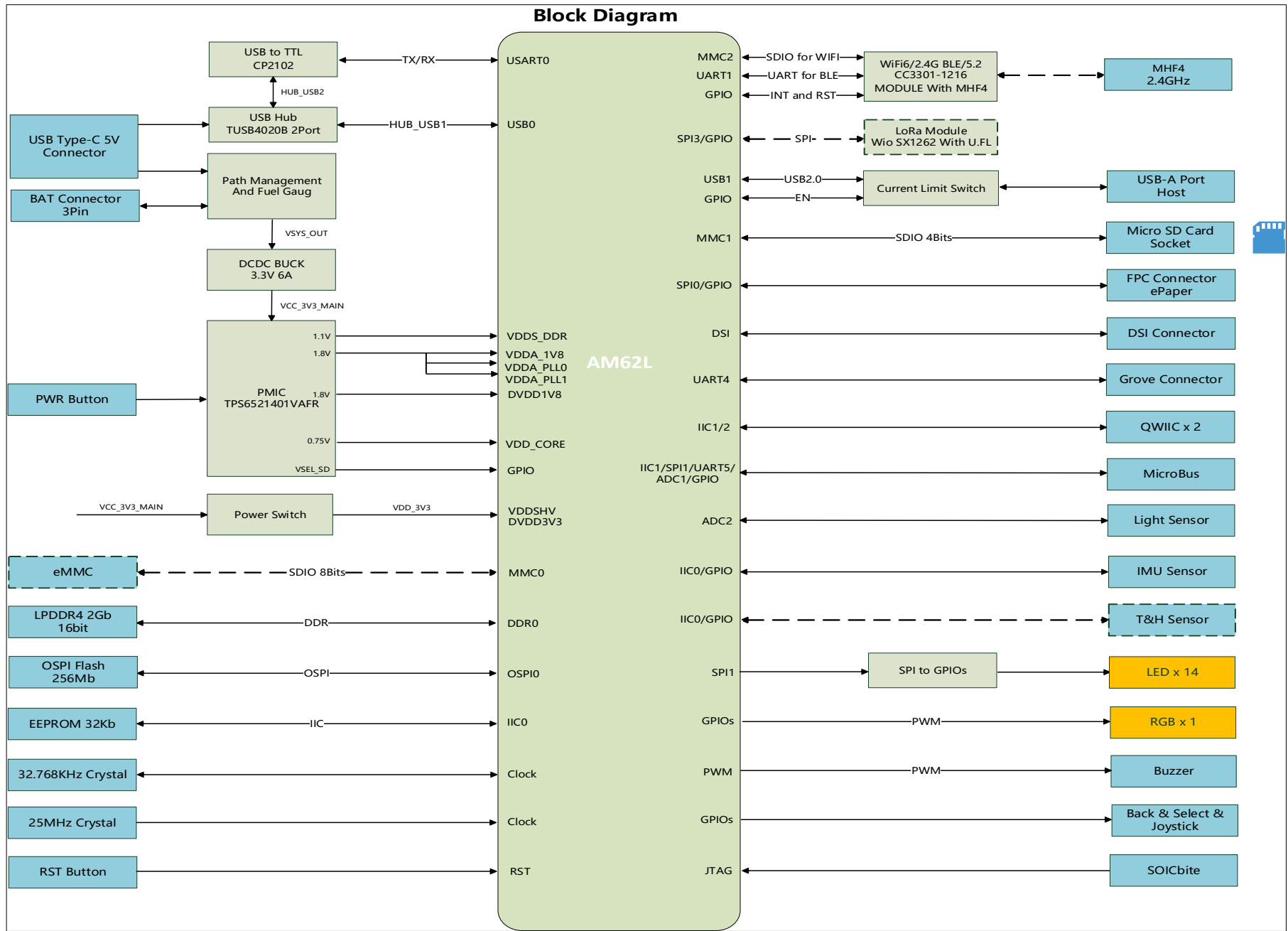


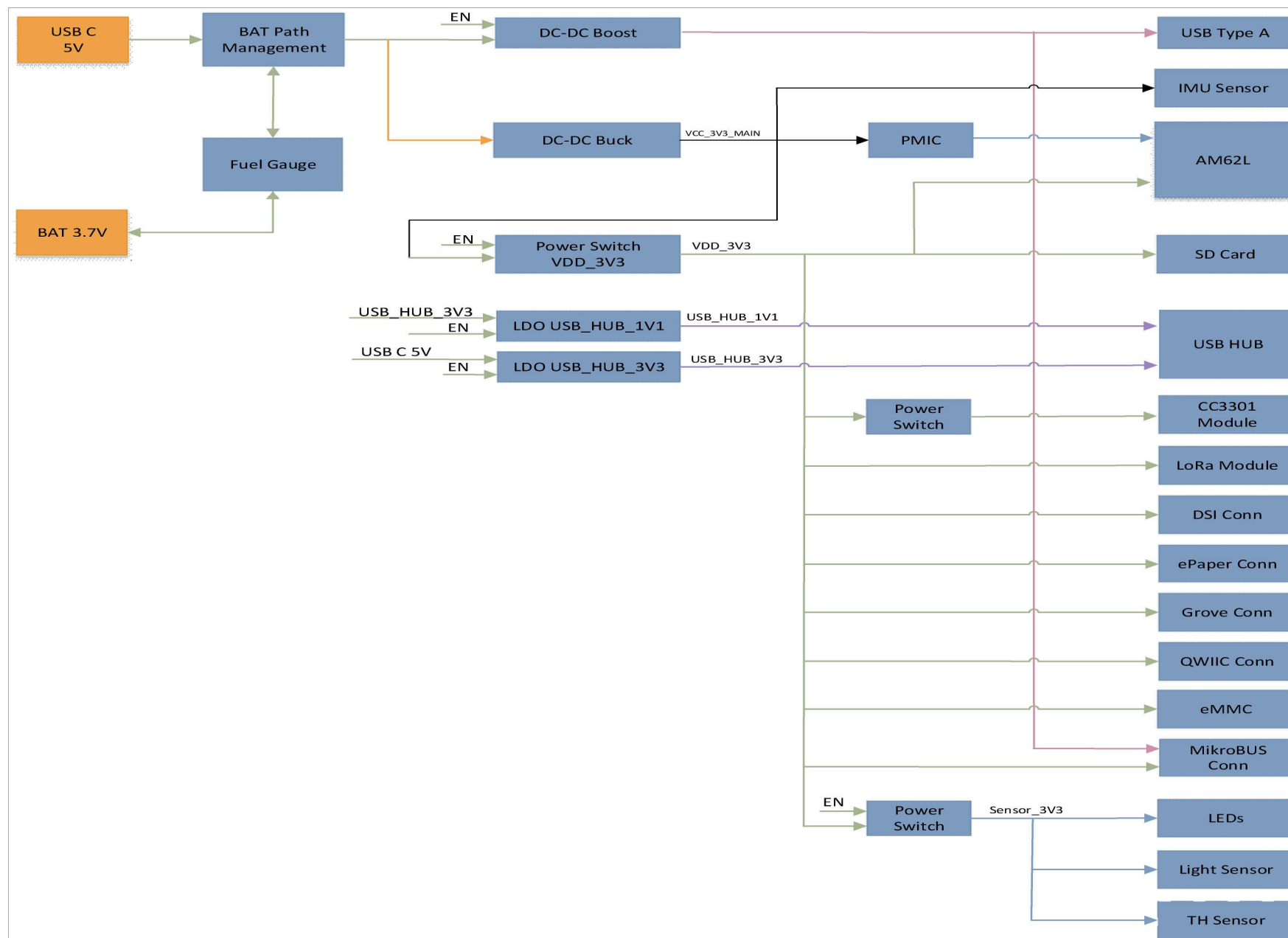
Schematic:Beaglebadge

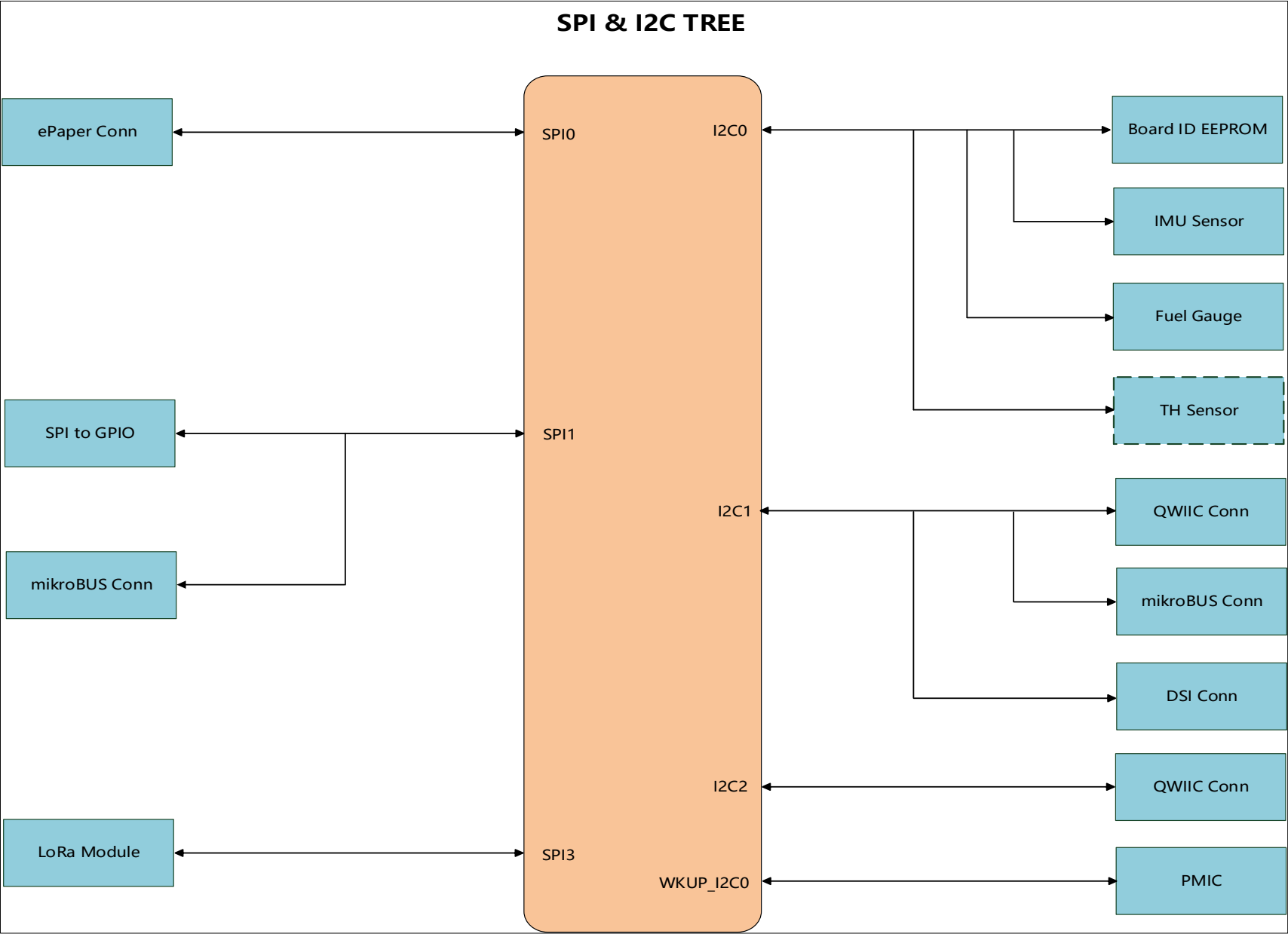
SHEET	SHEET NAME
01	Table of Contents
02	Block Diagram
03	Power Tree
04	IIC Tree
05	Power Input 5V
06	RTC ONLY Mode
07	AM62L PMIC
08	AM62L Power
09	AM62L DCAPs
10	AM62L WKUP & OSC & Reset
11	AM62L BOOT MODE
12	AM62L LPDDR4 DEVICE
13	AM62L OSPI Flash
14	AM62L Micro SD
15	AM62L ADC & DSI & OTHER
16	AM62L USB & HUB
17	USB2.0 Type A Host & UART
18	BM3301 & Sx1262 Module
19	EEPROM & SOICbite
20	Button & LEDs
21	Buzzer & IMU & Light
22	QWIIC & MikroBus
23	ePaper Conn
24	Other PINs & DSI & Grove
25	AM62L eMMC

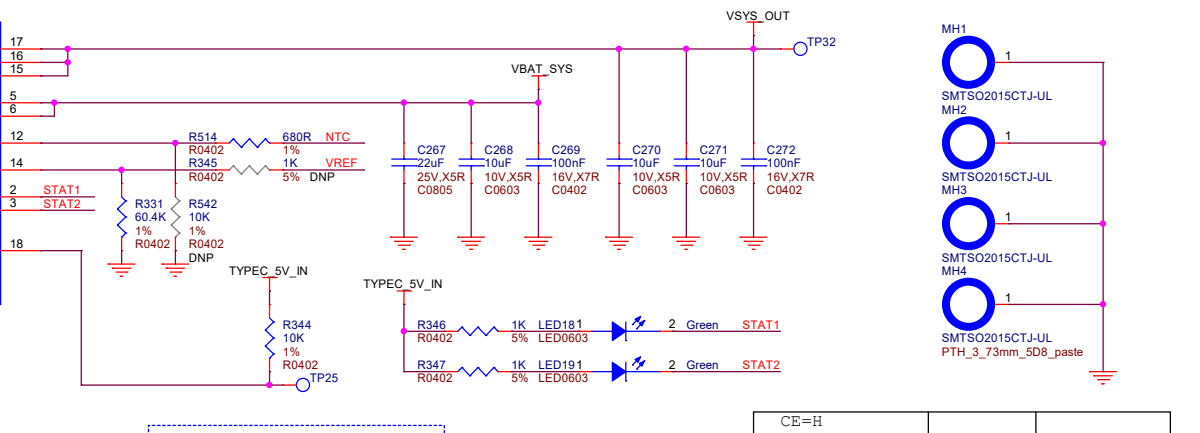
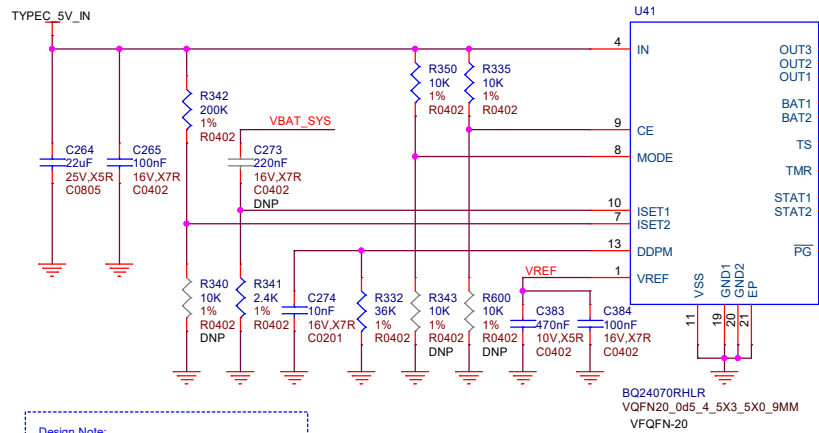
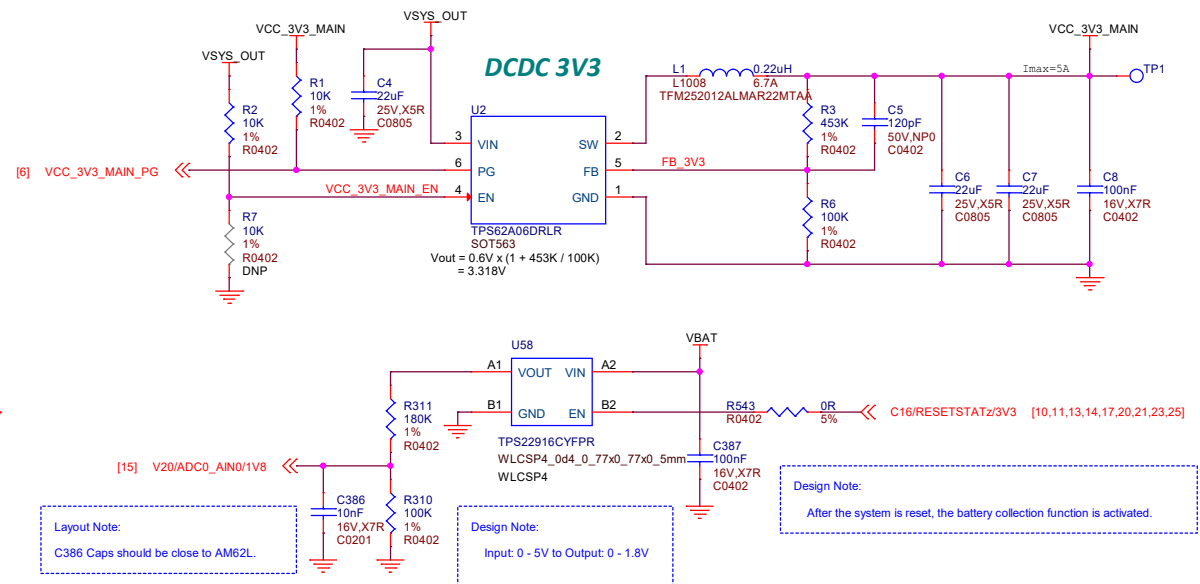
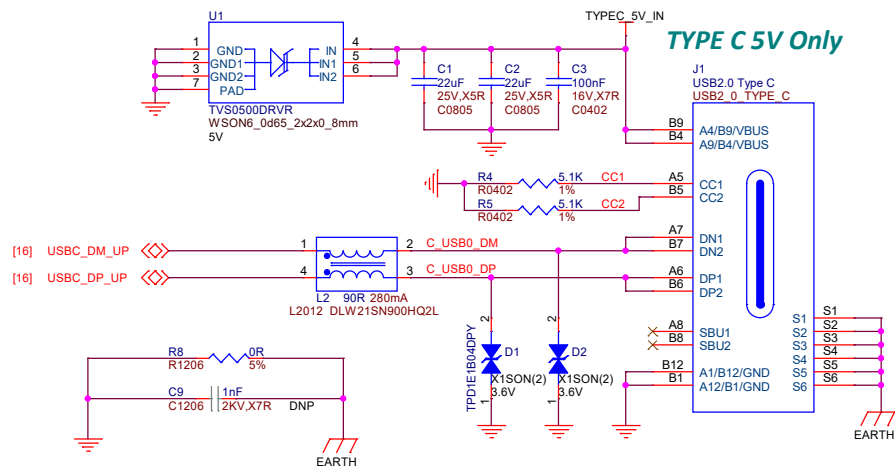
Revision History

DATE	REVISION	DESCRIPTION
2025/10/14	Rev A	1. Initial
2025/10/20	V0.3	Main modifications: 1. Change the capacitor withstand voltage to 2x or higher. 2. Correct the schematic symbol of the AND gate. 3. Add switch control to the power monitoring ADC. 4. Modify the circuit of RTC_PG and PMIC to reset AM62L. 5. DNI the output capacitor of TPS22965DSGR. 6. Add eMMC circuit. 7. Correct the wake-up signal(WAKEUP0/1). 8. Change Tag-Connect to SOIC16 Bite. 9. Change button gpios to 3V3 IOs because connect to SDIOBite 10. DNI I2C singles unpopulated for compatibility touchscreens.
2025/10/24	V0.4	1. Replace U9 with 0R resistors to switch Low Power mode. 2. Boot and Select function share one button. 3. Replace the Up/Down/Left/Right buttons with a joystick 4. Use the SPI1 to connect U42 (SPI to GPIO) and mikroBUS 5. Correct and add network identification descriptions 6. Adjust some GPIO allocation.
2025/10/28	V0.5	1. Added power supply selection for the IMU. 2. Modified the U62 circuit to prevent its input from floating. 3. Added the EXT_WAKEUP0 signal to pin 12 of J29 (SOICbite).
2025/10/29	V0.6	1. Use M23/GPIO0_43/3V3 to reset the USB Hub. 2. Use F22/GPIO0_29/PWM/3V3 to drive the buzzer. 3. The RGB LED has been changed to a smaller package.
2025/11/05	V0.7	1. Page8: Correct the VDDS0 power supply voltage to 1V8. 2. Page19: The JTAG signals change to 3.3V through a buffer. 3. Page24: The "Other GPIOs" pins shall be changed to 1V8.
2026/04/25	V1.0	1.Page5:R639 changed to NTC, charging cutoff at 45°C. R341= 2.4K, charging current reduced to 430mA. 2.Page6:Final power mode: RTC ONLY + IO + DDR. Removed main components U6, U8, U10, U39. 3.Page7:Added U88, reworked USB Hub power design. 3V3 and 1V8 only powered when Type-C is connected. 4.Page10:Removed U60, USB Hub now reset directly via GPIO. 5.Page18:Removed U36 LoRa module, added WiFi Power switch button. 6.Page20:Added Power button. D24 replaced with ESD0301L, added 220nF capacitor for ESD protection. 7.Page24:J27: removed AB9/RGMII2_RD0/1V8, added sensor 3V3. 8.Page25:DNP eMMC. 9.General:Minor passives adjustments across schematic.
2026/07/28	V1.0	1. Mount U36 as required. 2. PCB version number remains unchanged.

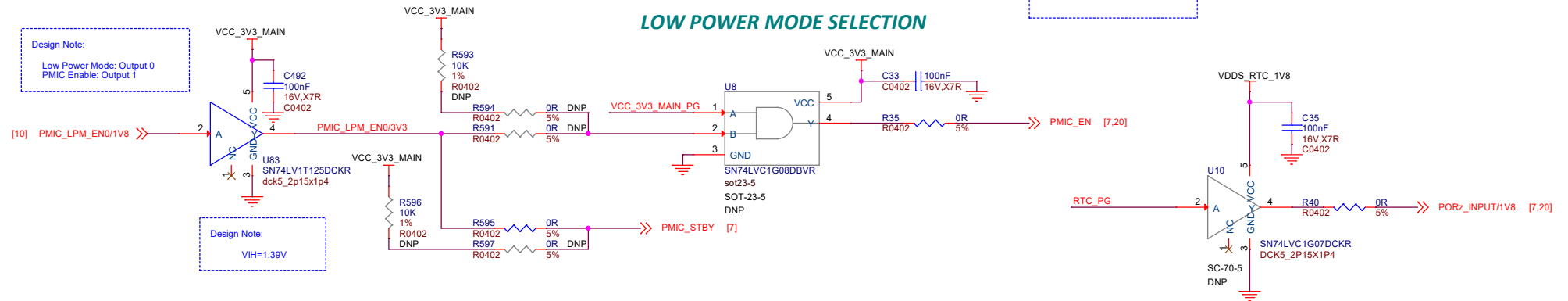
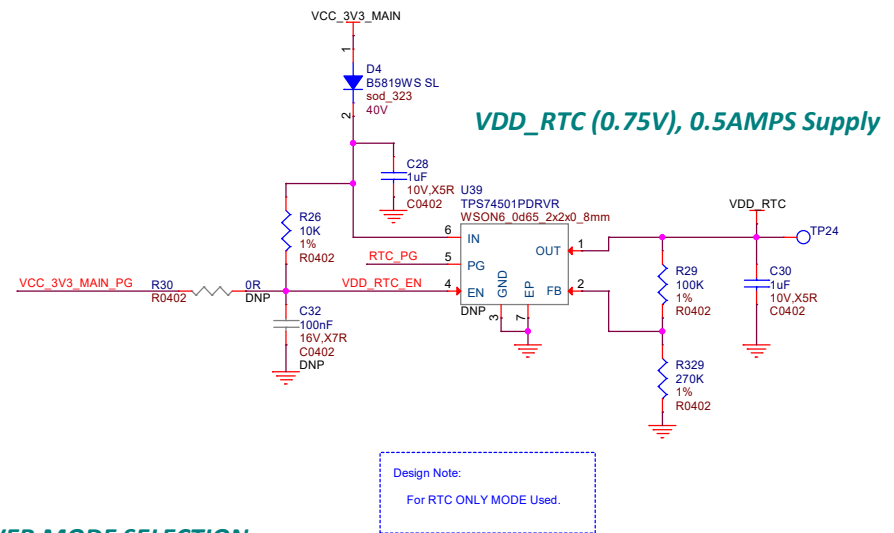
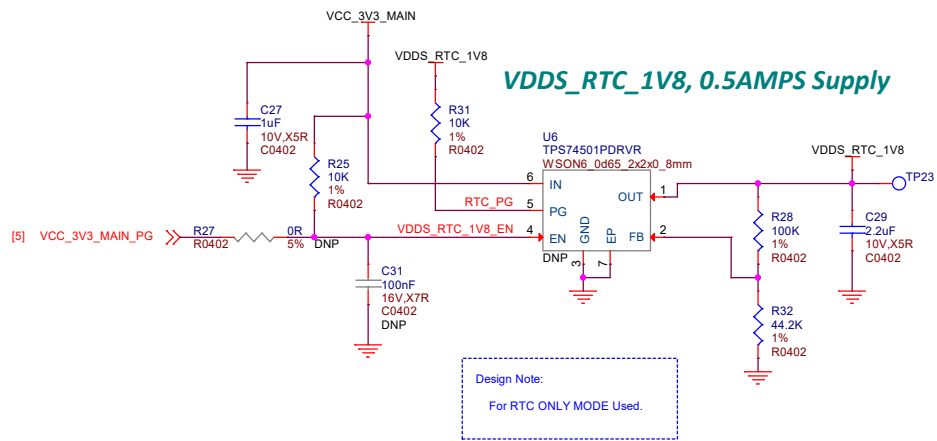






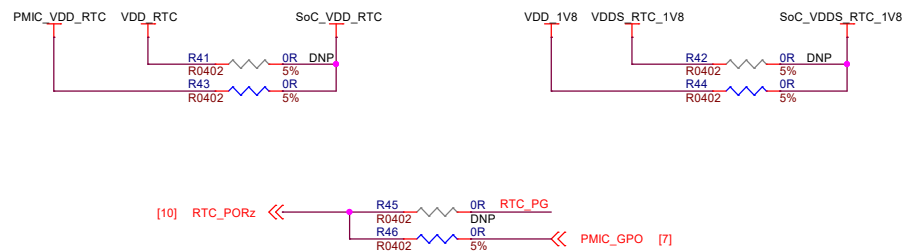


CE=H	STAT1	STAT2
CHARGE STATE		
Precharge	ON	ON
Fast charge	ON	OFF
Charge done	OFF	ON
Charge suspend	OFF	OFF

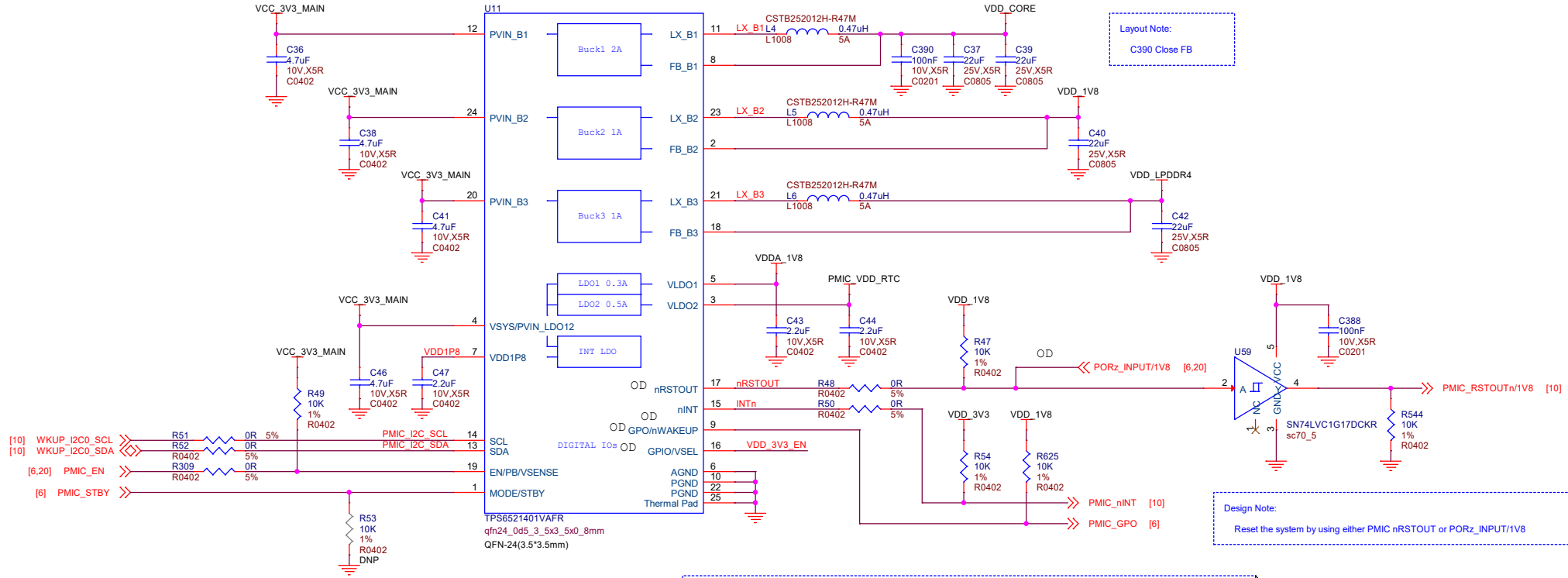


Default: RTC + IO + DDR MODE

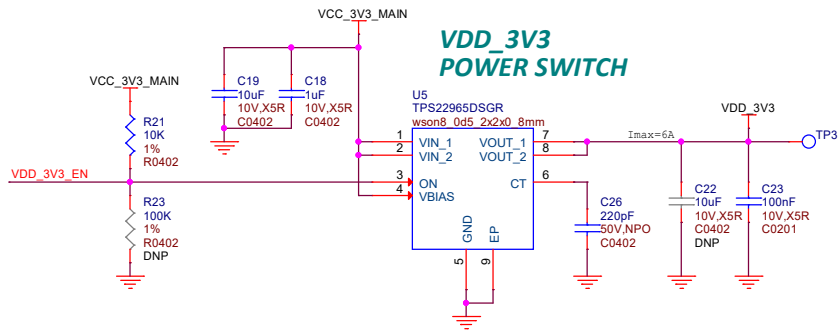
RTC Only MODE	TO SOC	RTC + IO + DDR MODE
VDDS_RTC_1V8	SoC_VDDS_RTC_1V8	SOC_DVDD1V8
VDD_RTC	SoC_VDD_RTC	PMIC_VDD_RTC
RTC_PG	RTC_PORz	PMIC_GPO



PMIC



VDD_3V3 POWER SWITCH



Design Note:

USB Hub Power 1V1

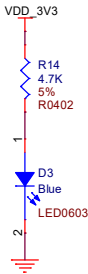
Design Note:

USB Hub Power 3V3

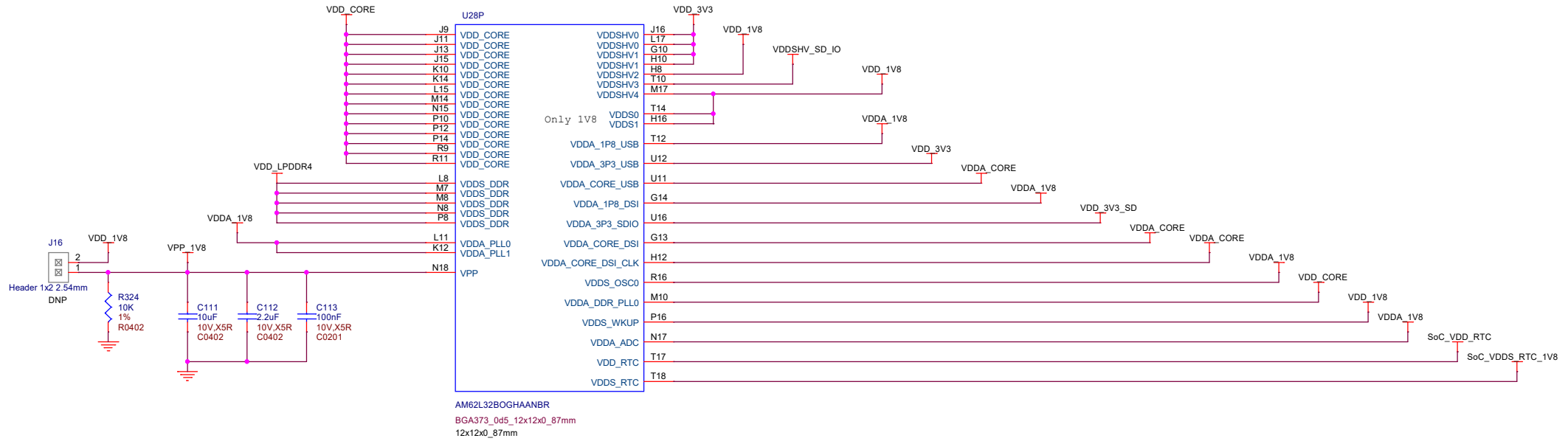
Design Note:

1. USB Hub is only active when Type-C is connected.
2. USB Hub 3V3 and 1V1 power rails are disabled when Type-C is disconnected.

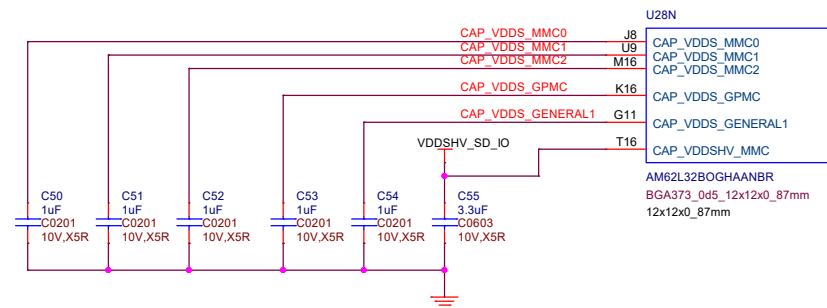
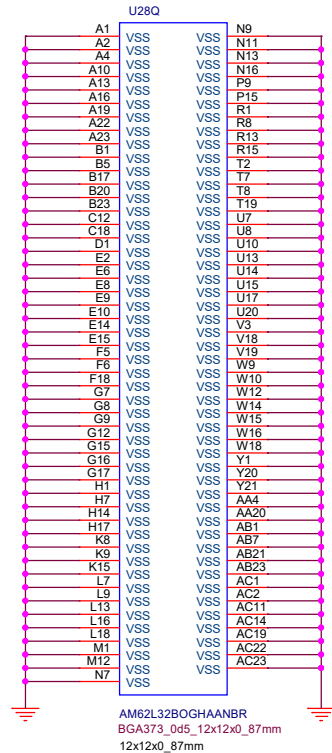
VDD_3V3 POWER LED



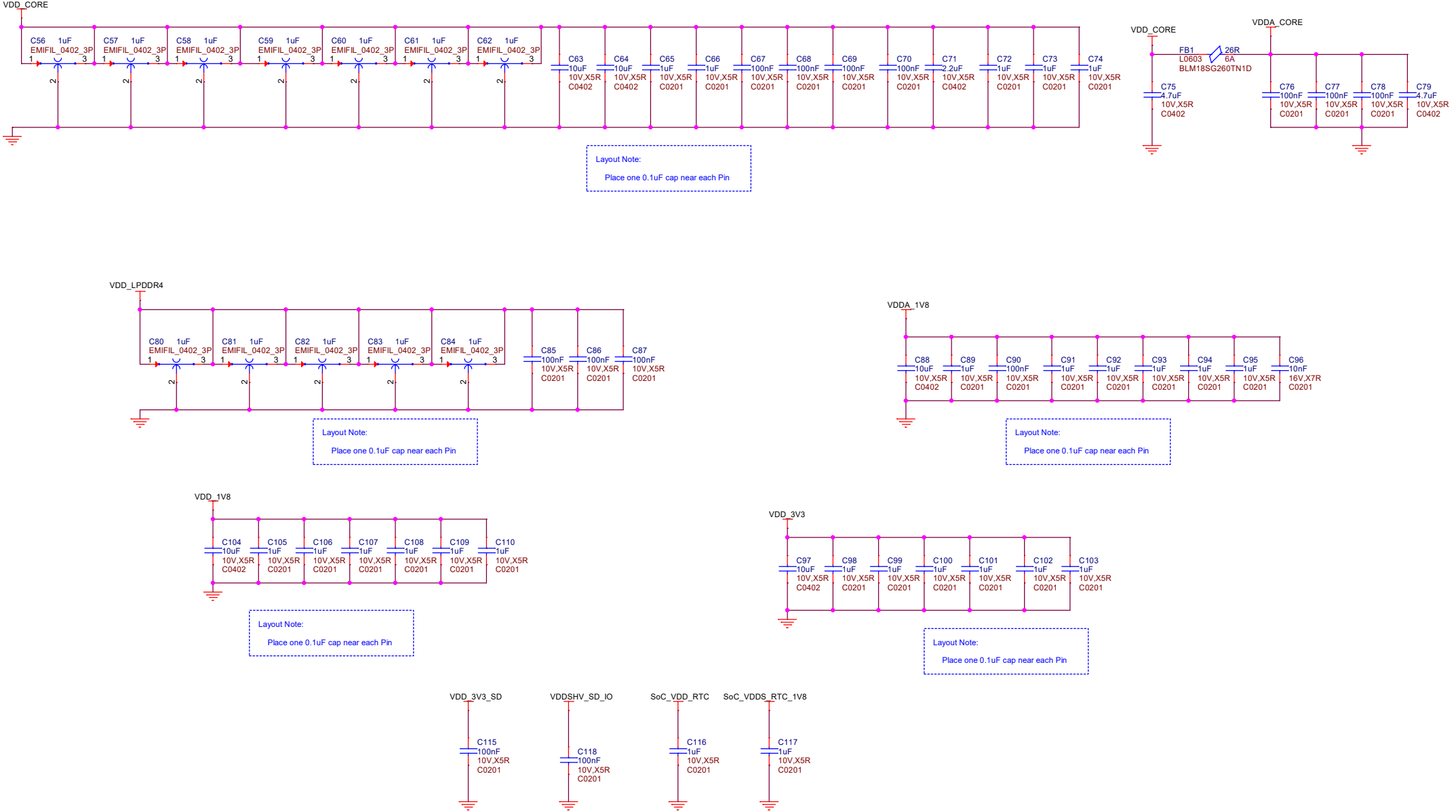
SOC POWER SUPPLIES AND SUPPLY RAILS



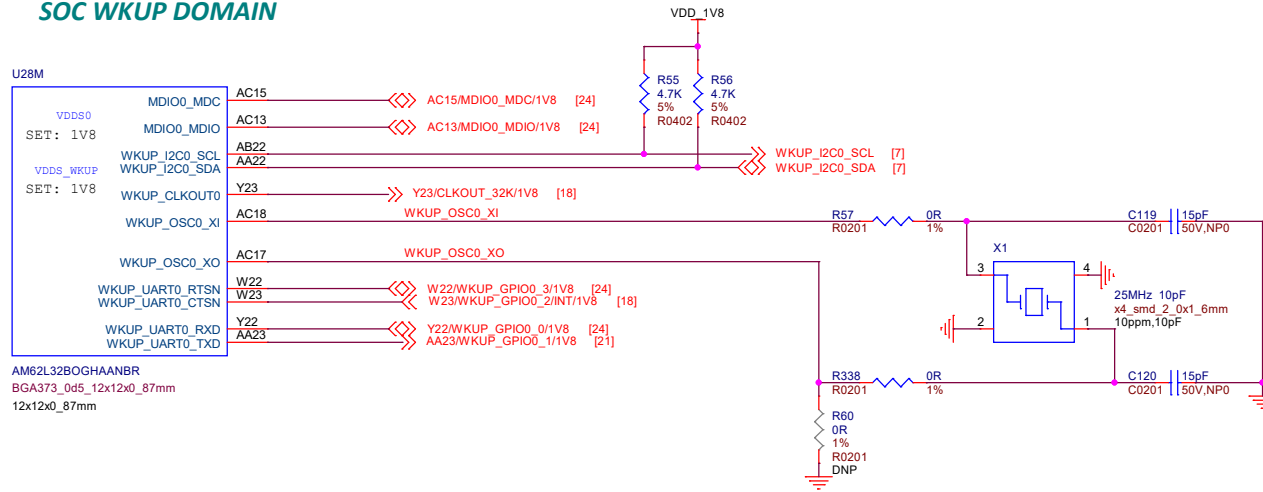
SOC VSS



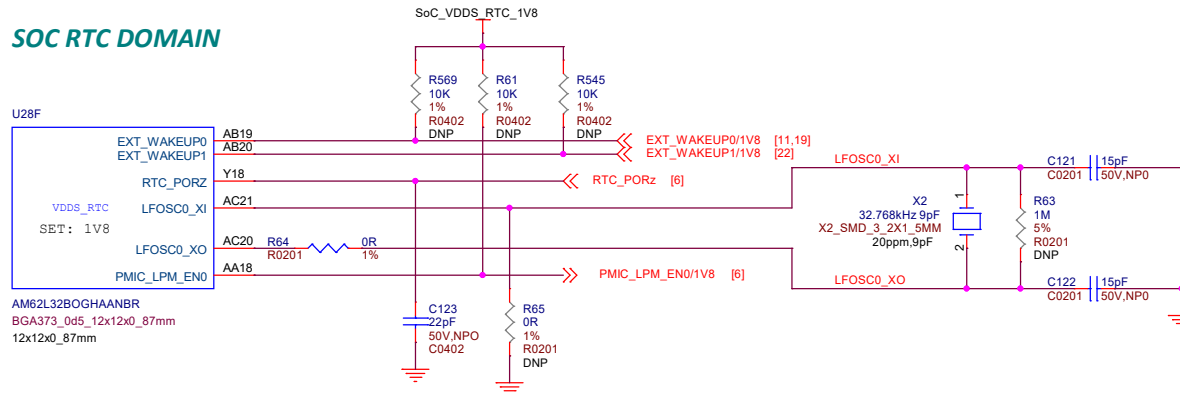
SOC POWER SUPPLIES - DECAPS



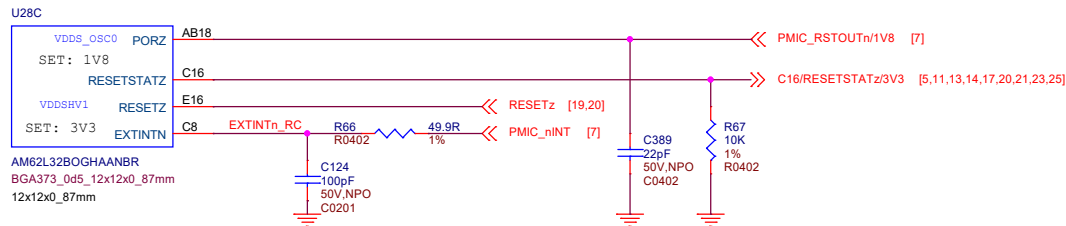
SOC WKUP DOMAIN

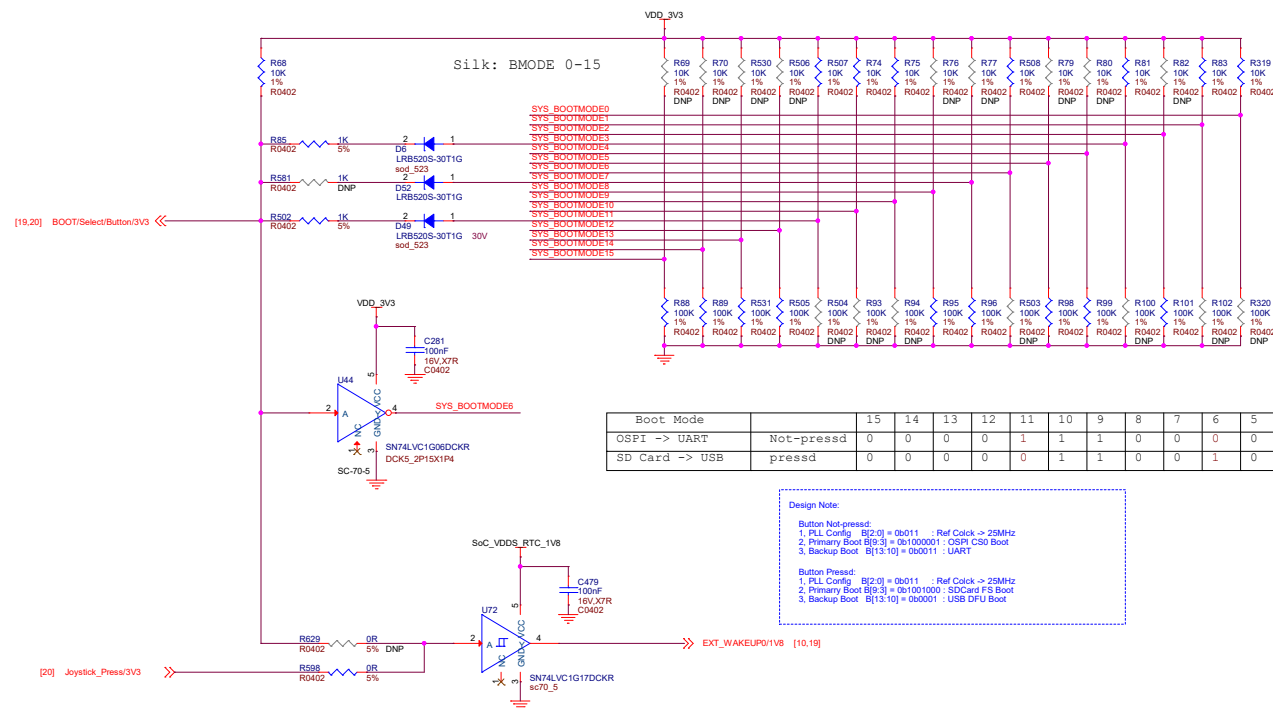
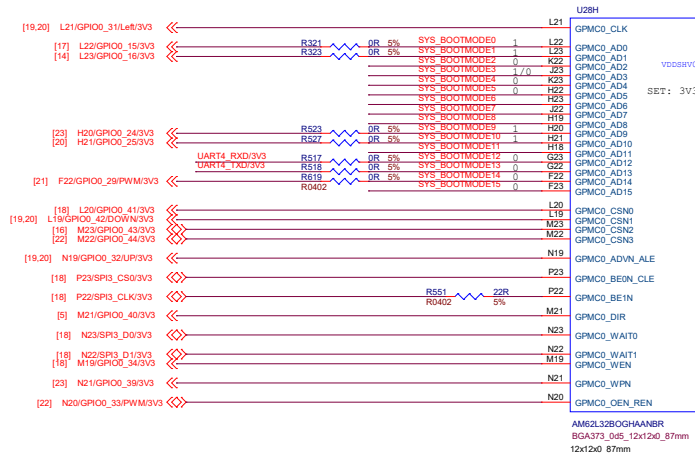


SOC RTC DOMAIN



SOC RESET



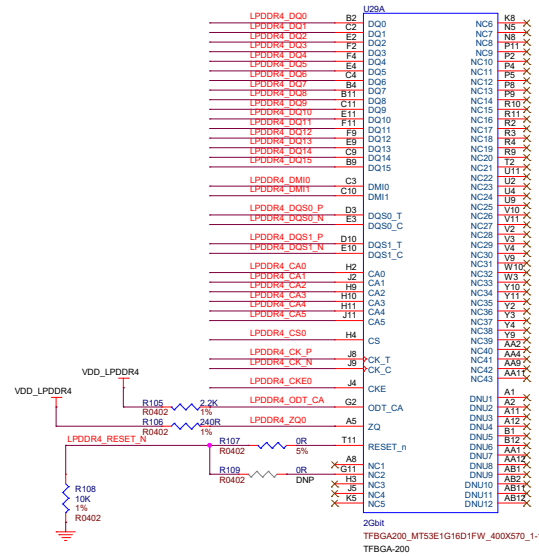


Boot Mode		15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
OSPI -> UART	Not-pressd	0	0	0	0	1	1	1	0	0	0	0	0	1	0	1	
SD Card -> USB	pressd	0	0	0	0	0	1	1	0	0	1	0	0	0	0	1	

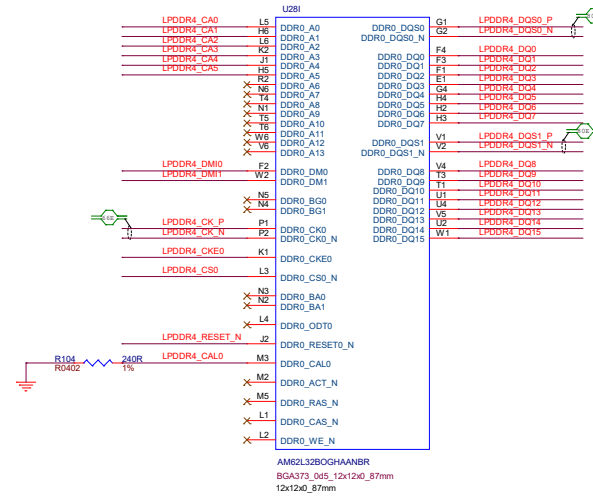
Boot Mode		15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
eMMC -> UART	Not-pressed	0	0	0	0	1	1	1	0	1	1	0	0	1	0	1	
SD Card -> USB	pressed	0	0	0	0	0	1	1	0	0	1	0	0	0	0	1	

LPDDR4 DEVICE

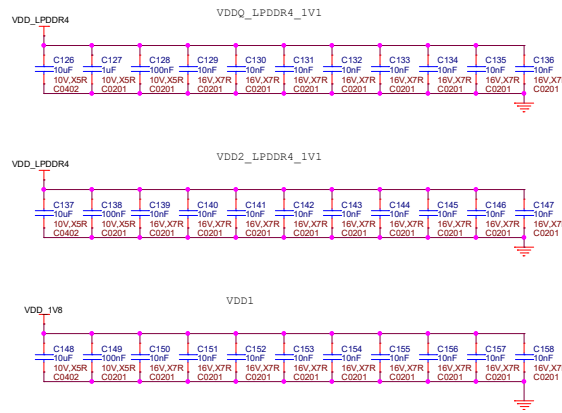
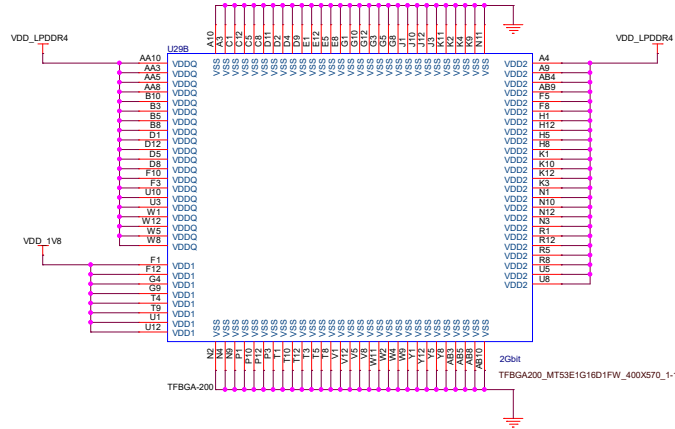
Silk: LPDDR4

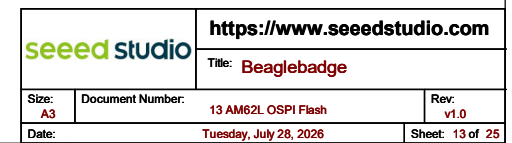


SOC LPDDR4 INTERFACE



LPDDR4 POWER DECAPS



[illegible]

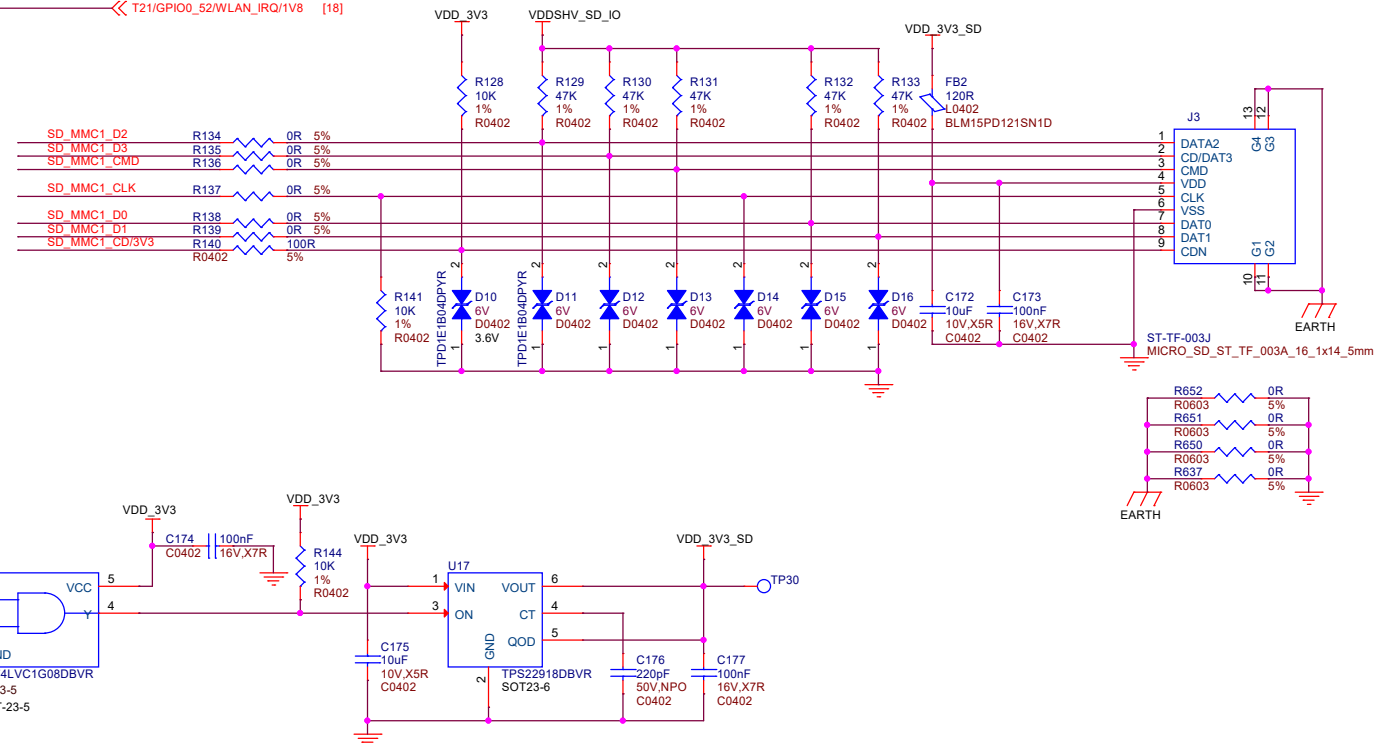
SOC - MMC Interface

U28J



AM62L32BOGHAANBR
BGA373_0d5_12x12x0_87mm
12x12x0_87mm

MICRO SD CARD



U28E



AM62L32BOGHAANBR
BGA373_0d5_12x12x0_87mm
12x12x0_87mm

SOC - MCASP and UART

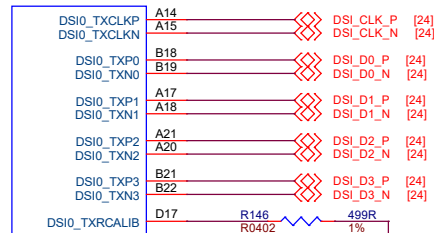
U28G



AM62L32BOGHAANBR
BGA373_0d5_12x12x0_87mm
12x12x0_87mm

SOC - DSI

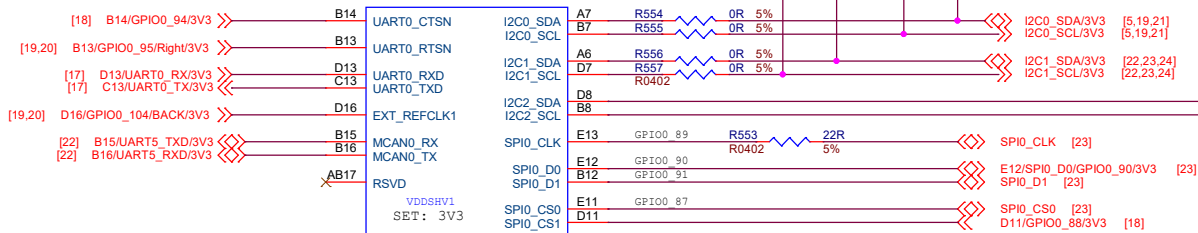
U28O



AM62L32BOGHAANBR
BGA373_0d5_12x12x0_87mm
12x12x0_87mm

SOC - UART, MCAN, I2C and IOs

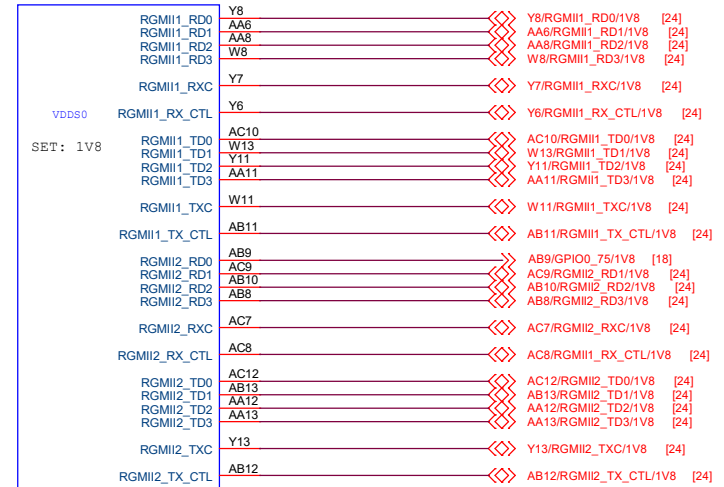
U28A



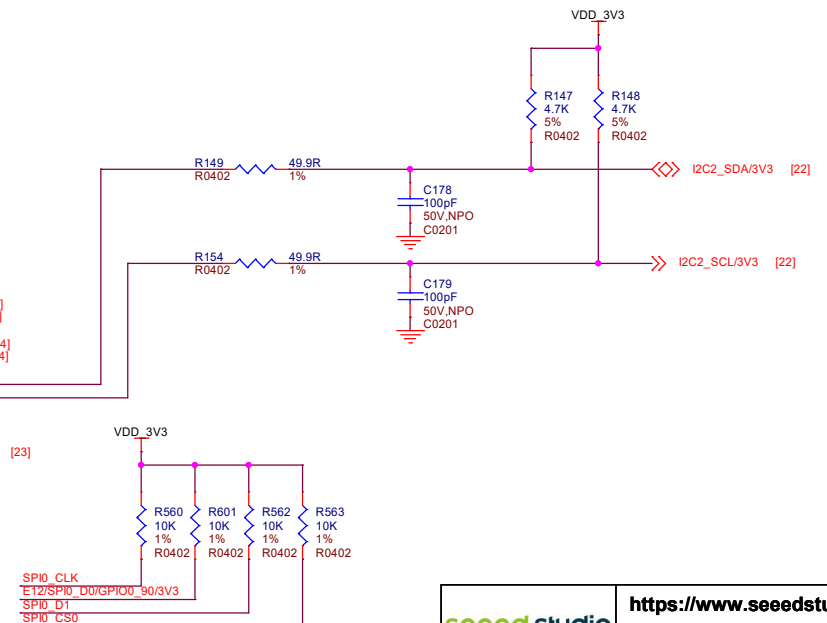
AM62L32BOGHAANBR
BGA373_0d5_12x12x0_87mm
12x12x0_87mm

SOC - ETHERNET INTERFACE

U28L



AM62L32BOGHAANBR
BGA373_0d5_12x12x0_87mm
12x12x0_87mm



seeed studio

<https://www.seeedstudio.com>

Title: Beaglebadge

Size: A3

Document Number:

15 AM62L ADC & DSI & OTHER

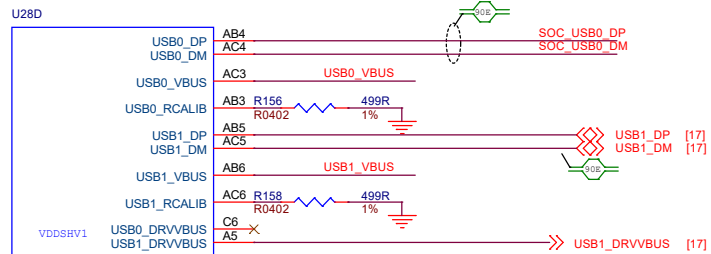
Rev: v1.0

Date:

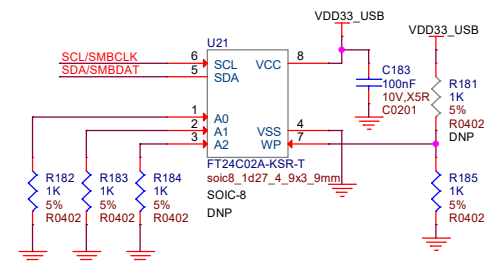
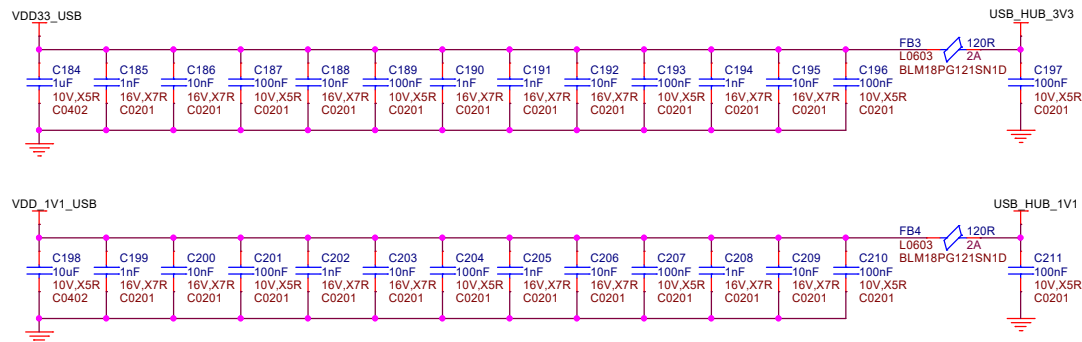
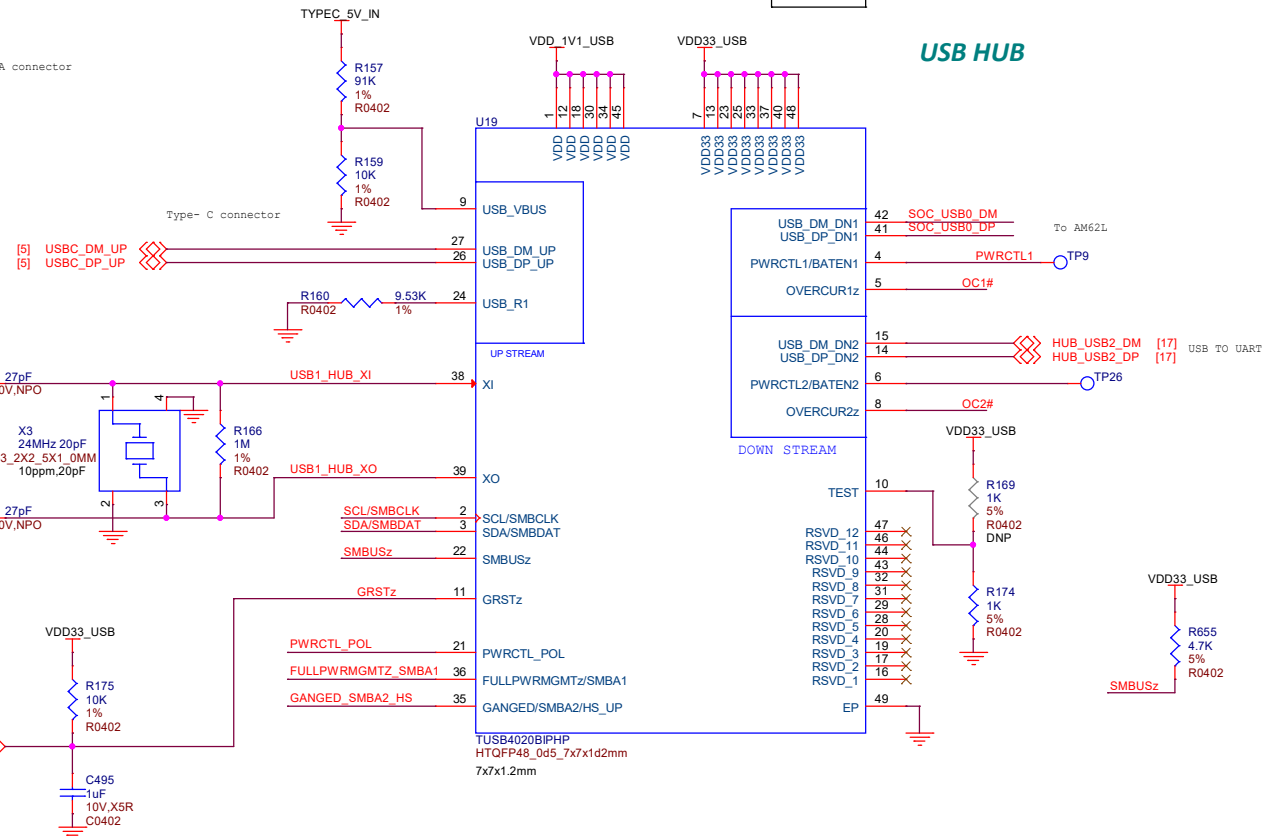
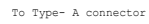
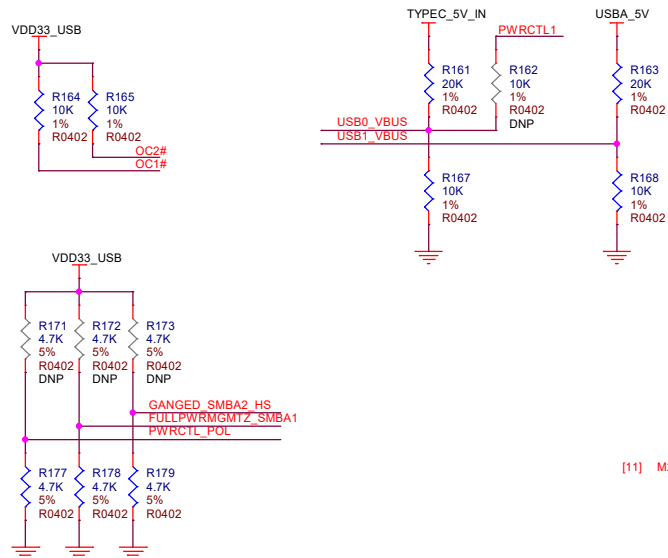
Tuesday, July 28, 2026

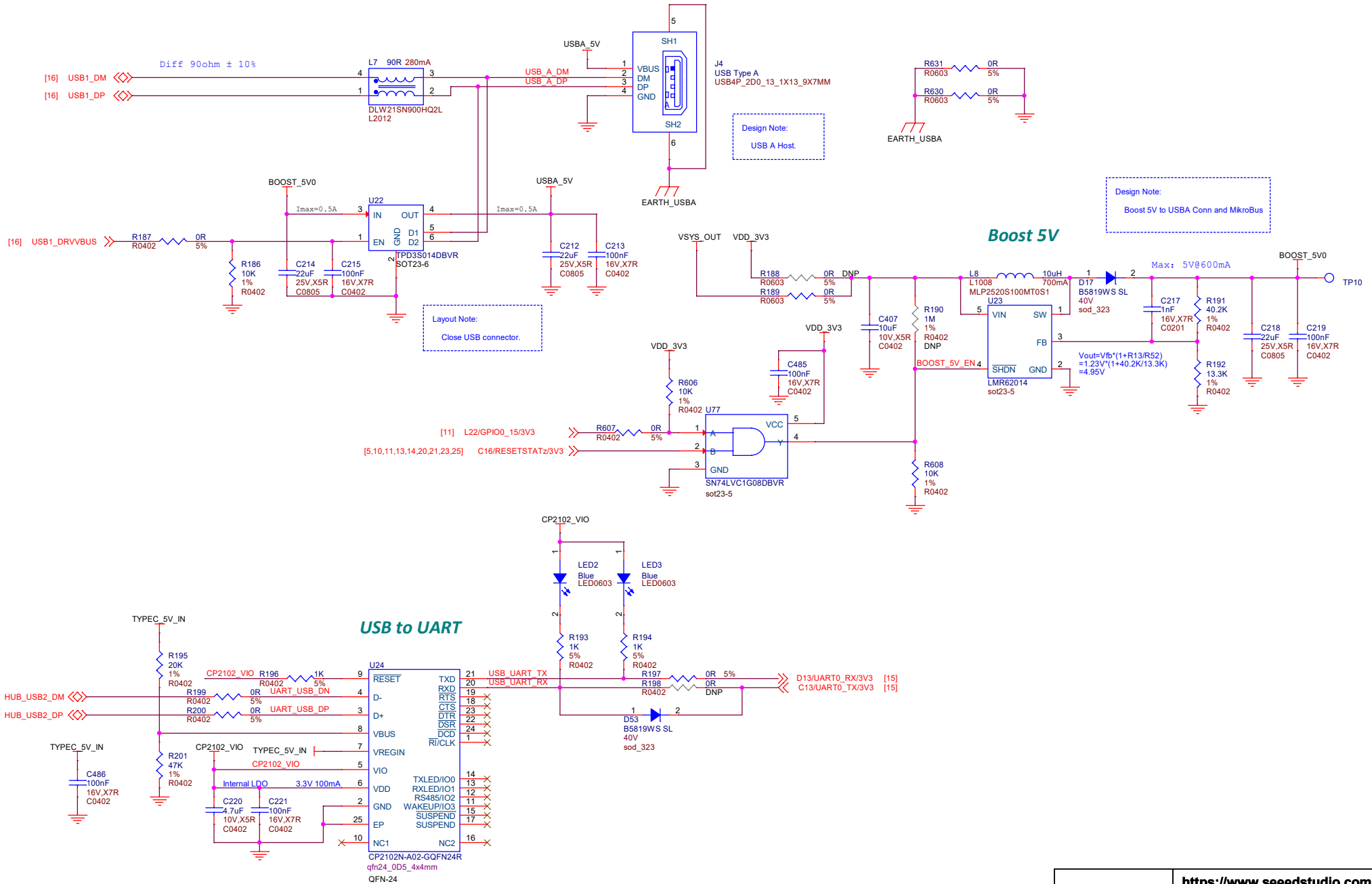
Sheet: 15 of 25

SOC - USB

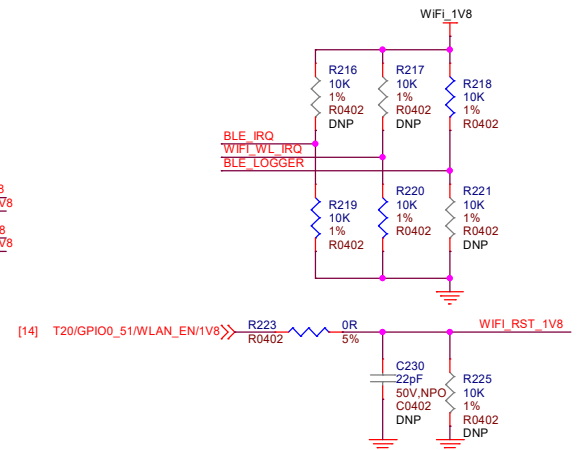
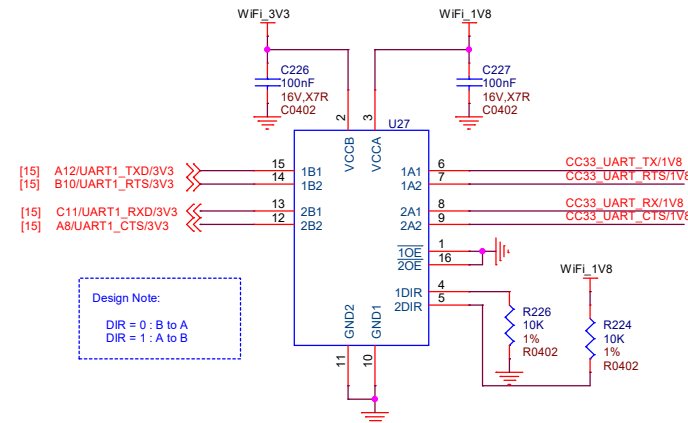
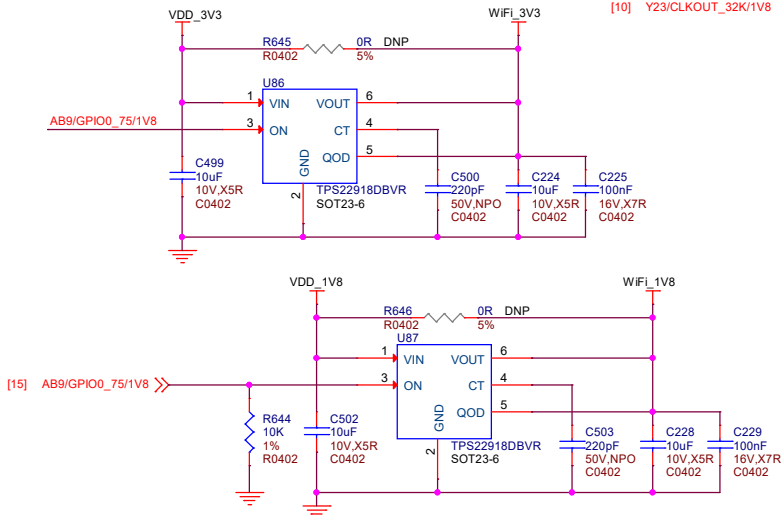
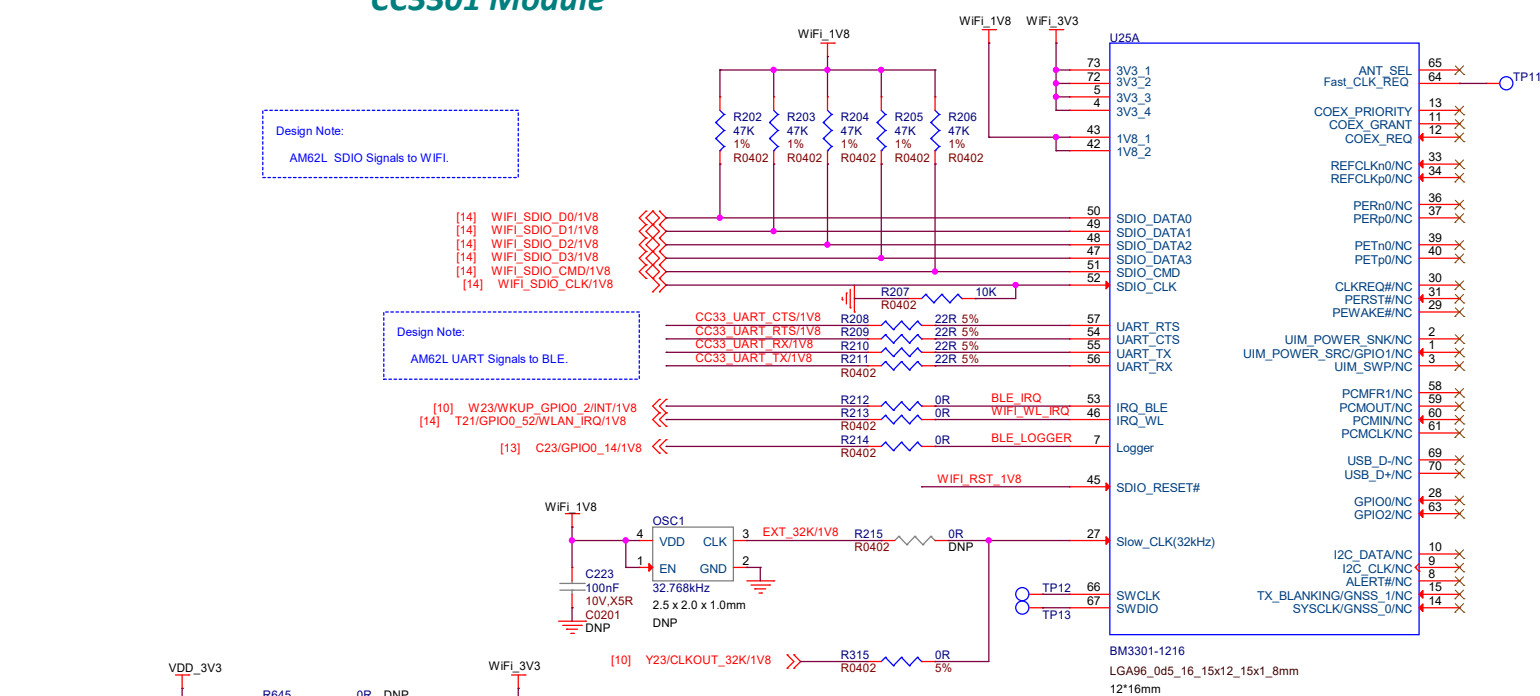


AM62L32BOGHAANBR
BGA373_0d5_12x12x0_87mm
12x12x0_87mm

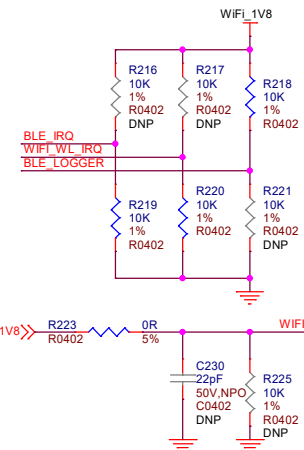
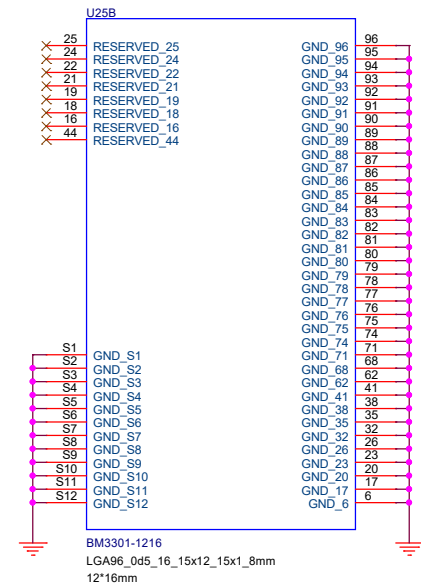
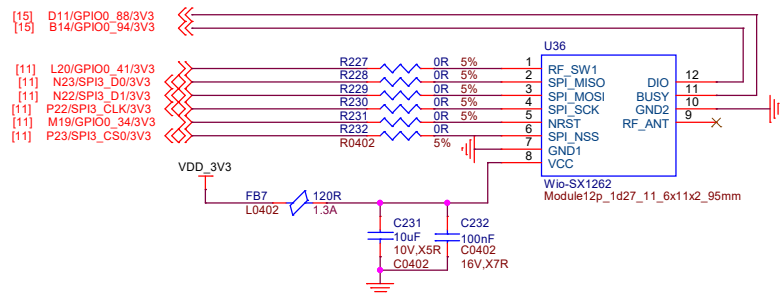




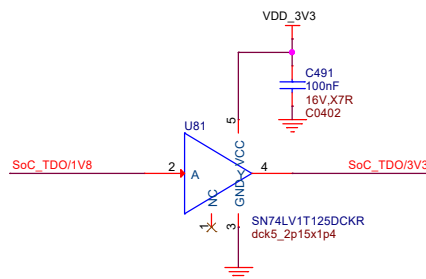
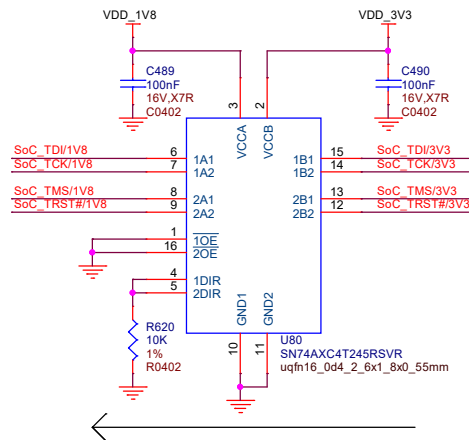
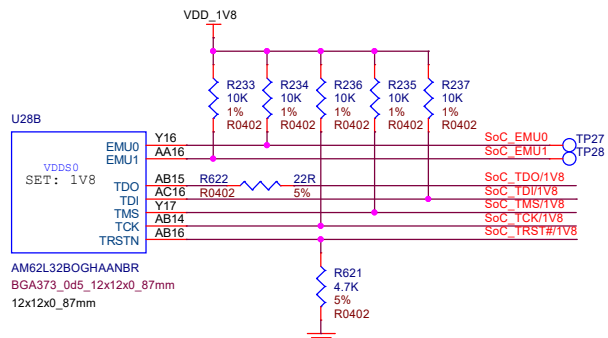
CC3301 Module



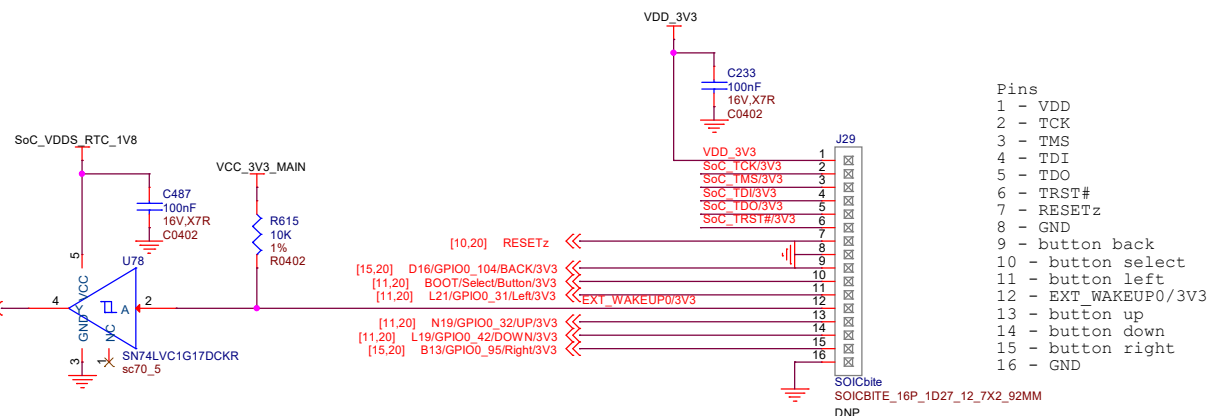
LoRa Module



SOC-JTAG

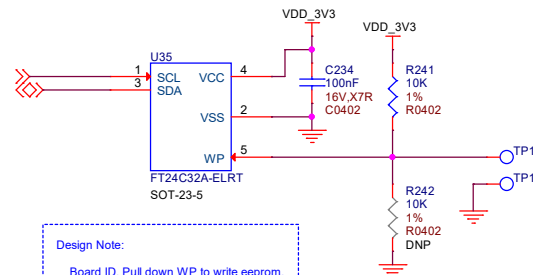


SOICbrite



- Pins
- 1 - VDD
 - 2 - TCK
 - 3 - TMS
 - 4 - TDI
 - 5 - TDO
 - 6 - TRST#
 - 7 - RESETz
 - 8 - GND
 - 9 - button back
 - 10 - button select
 - 11 - button left
 - 12 - EXT_WAKEUP0/3V3
 - 13 - button up
 - 14 - button down
 - 15 - button right
 - 16 - GND

[5,15,21] I2C0_SCL/3V3
[5,15,21] I2C0_SDA/3V3

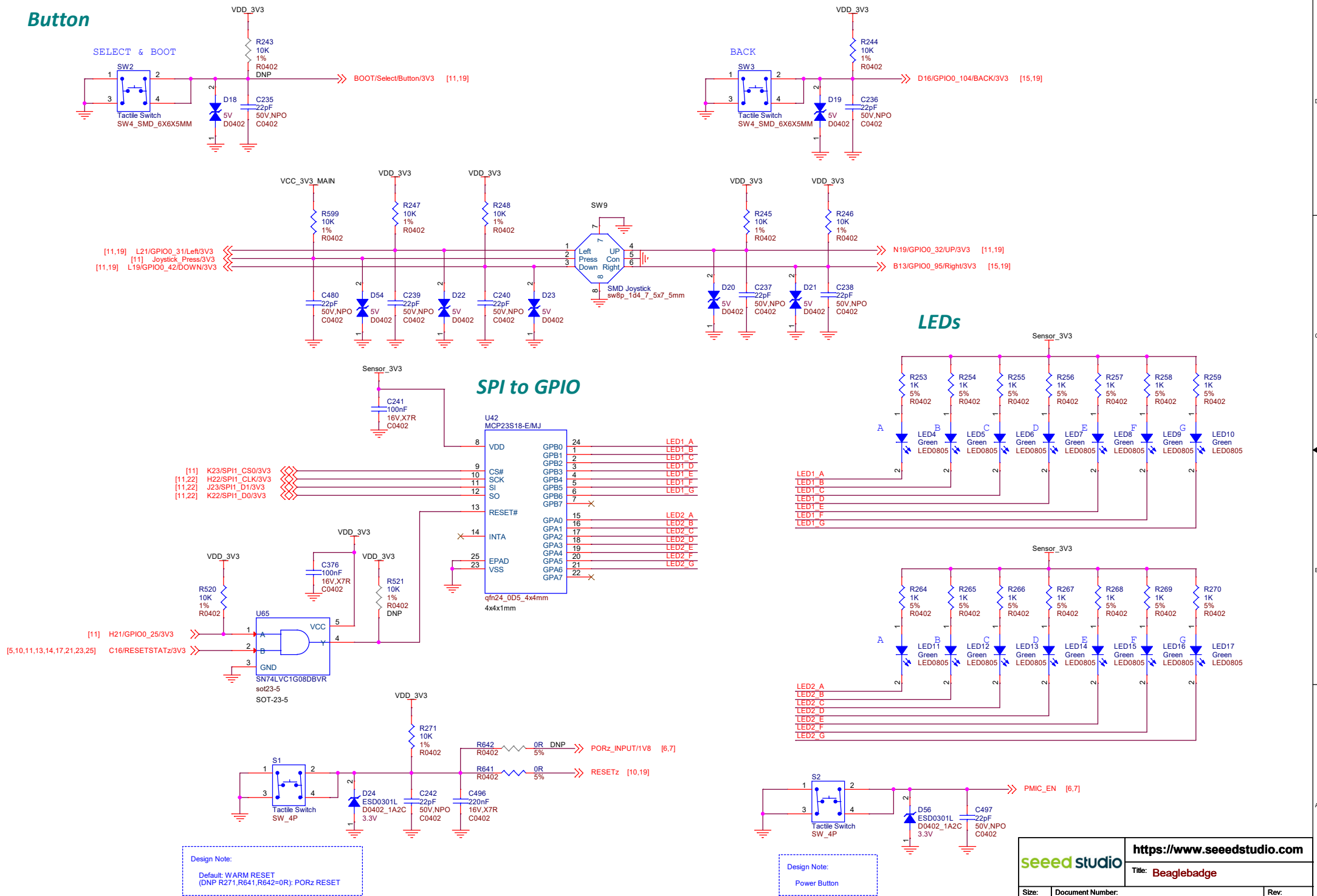


BOARD ID EEPROM 32Kbit

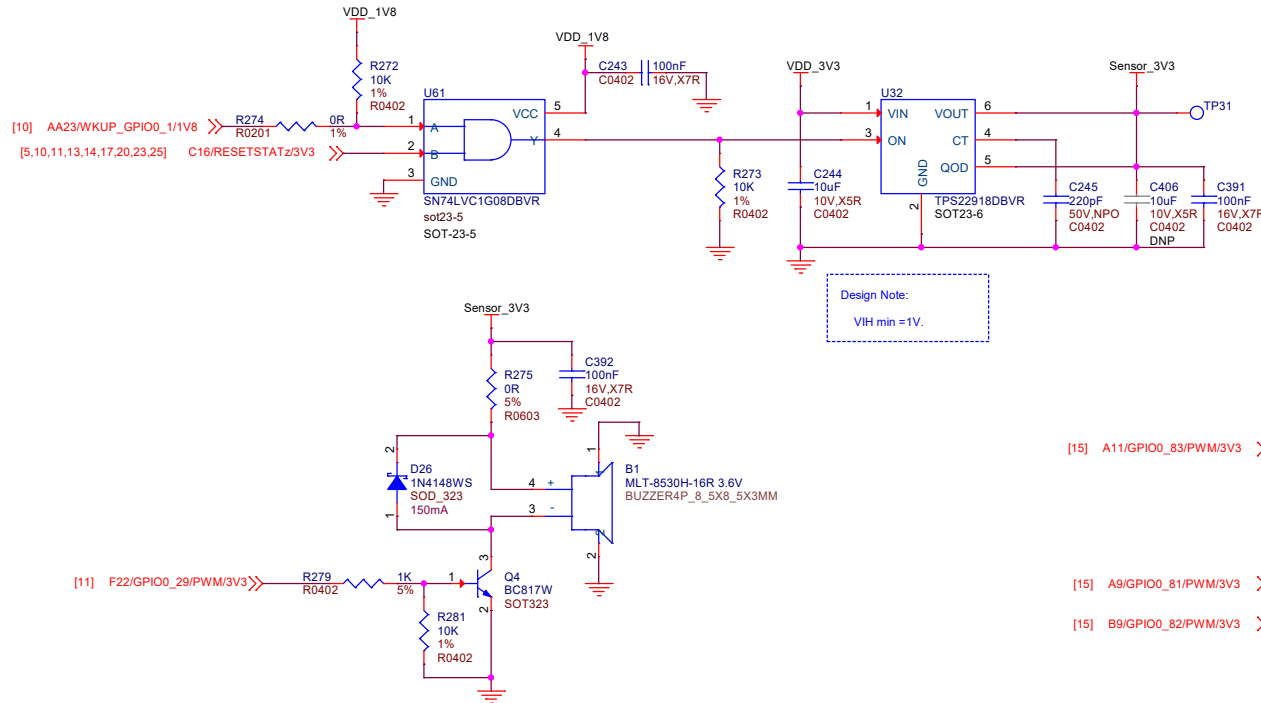
SoC_TDI/1V8 R633 0R DNP SoC_TDI/3V3
SoC_TCK/1V8 R634 0R DNP SoC_TCK/3V3
SoC_TMS/1V8 R635 0R DNP SoC_TMS/3V3
SoC_TRST#/1V8 R636 0R DNP SoC_TRST#/3V3
SoC_TDO/1V8 R632 0R DNP SoC_TDO/3V3
R0402 5%

Design Note:
1V8 Level for JTAG.

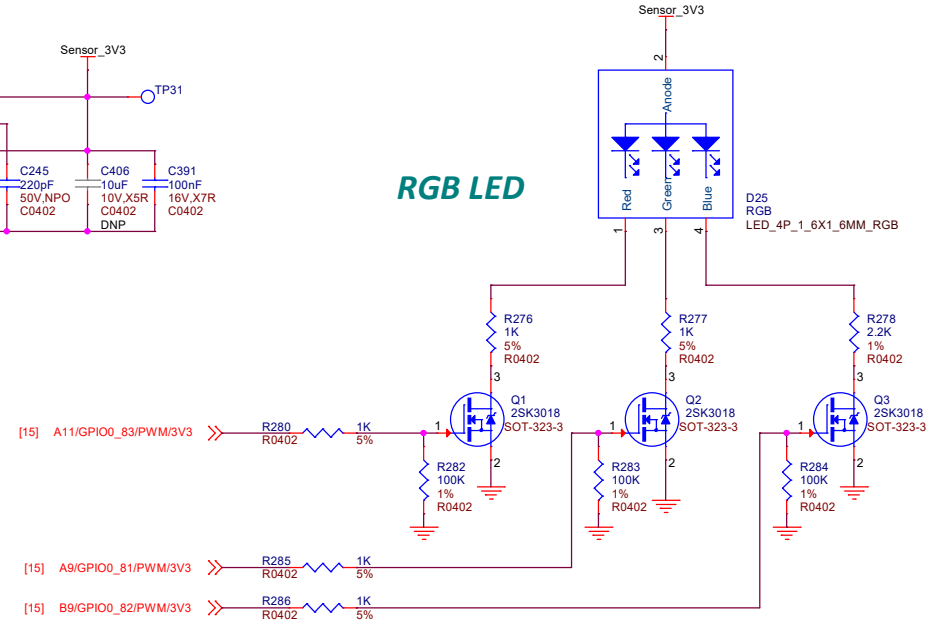
Button



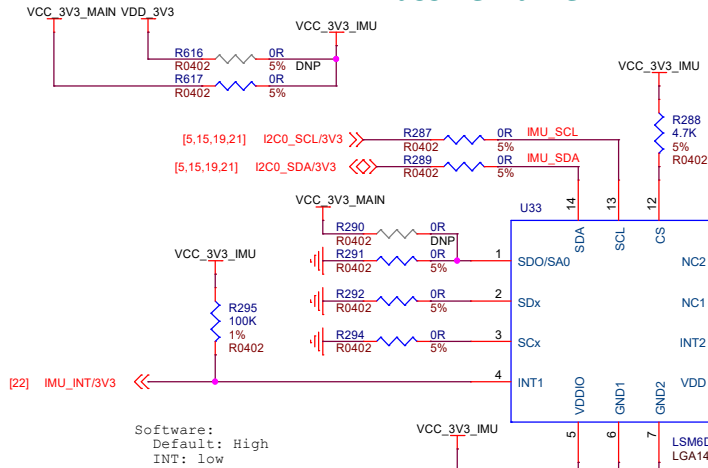
Sensor Power Switch



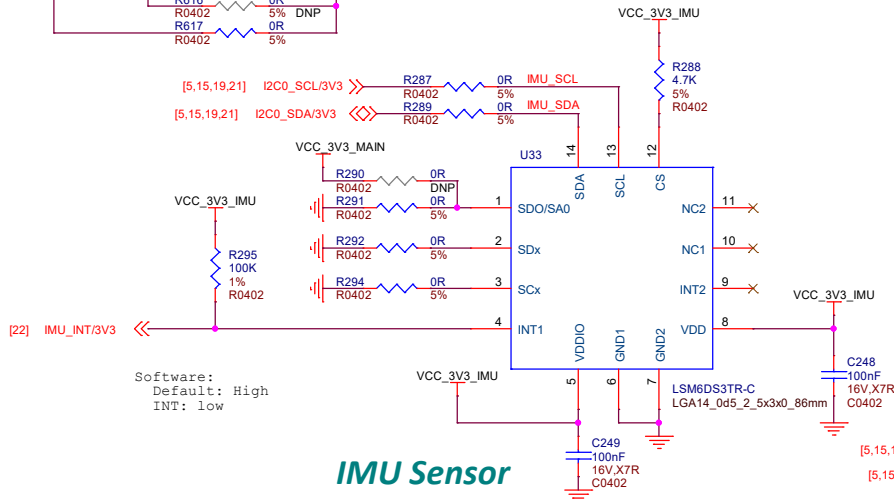
RGB LED



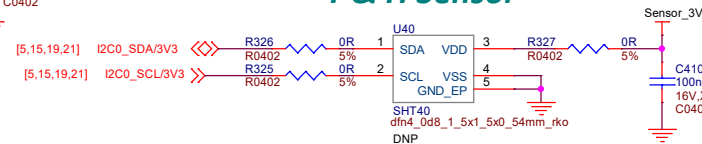
Passive Buzzer



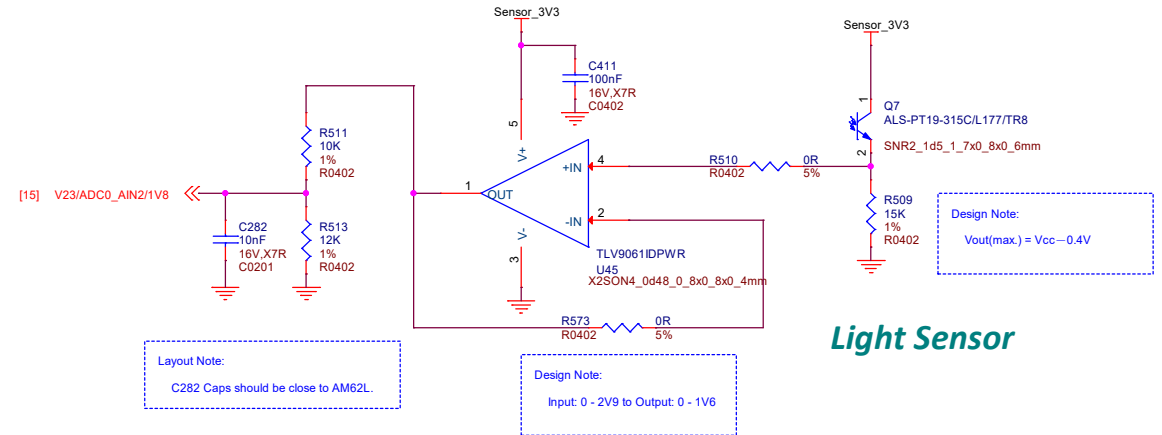
IMU Sensor

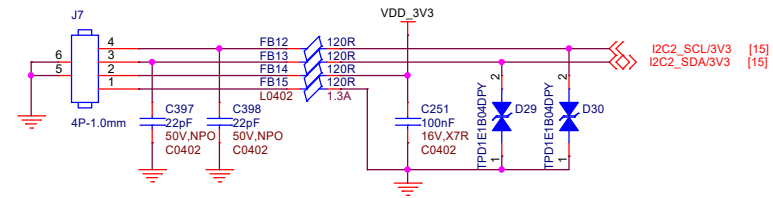
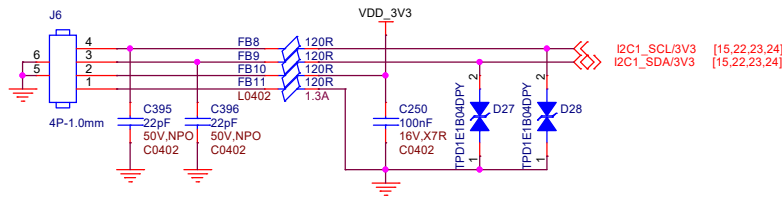


T & H Sensor

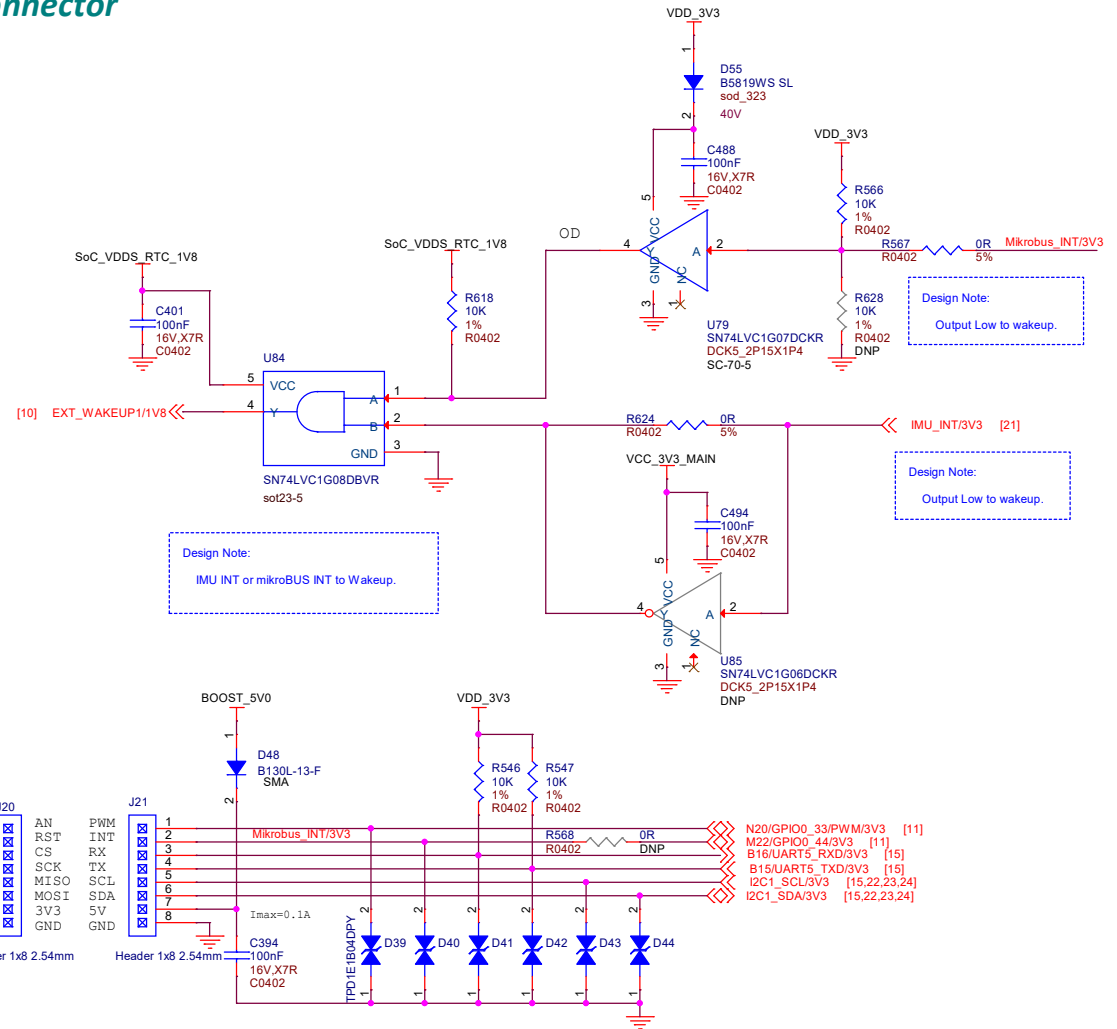


Light Sensor





QWIIC Connector



MikroBus

Layout Note:
Close to epaper connector

Design Note:
If you need to connect another model of touchscreen, you will need an additional adapter board and use I2C1 as the I2C interface for the touchscreen.

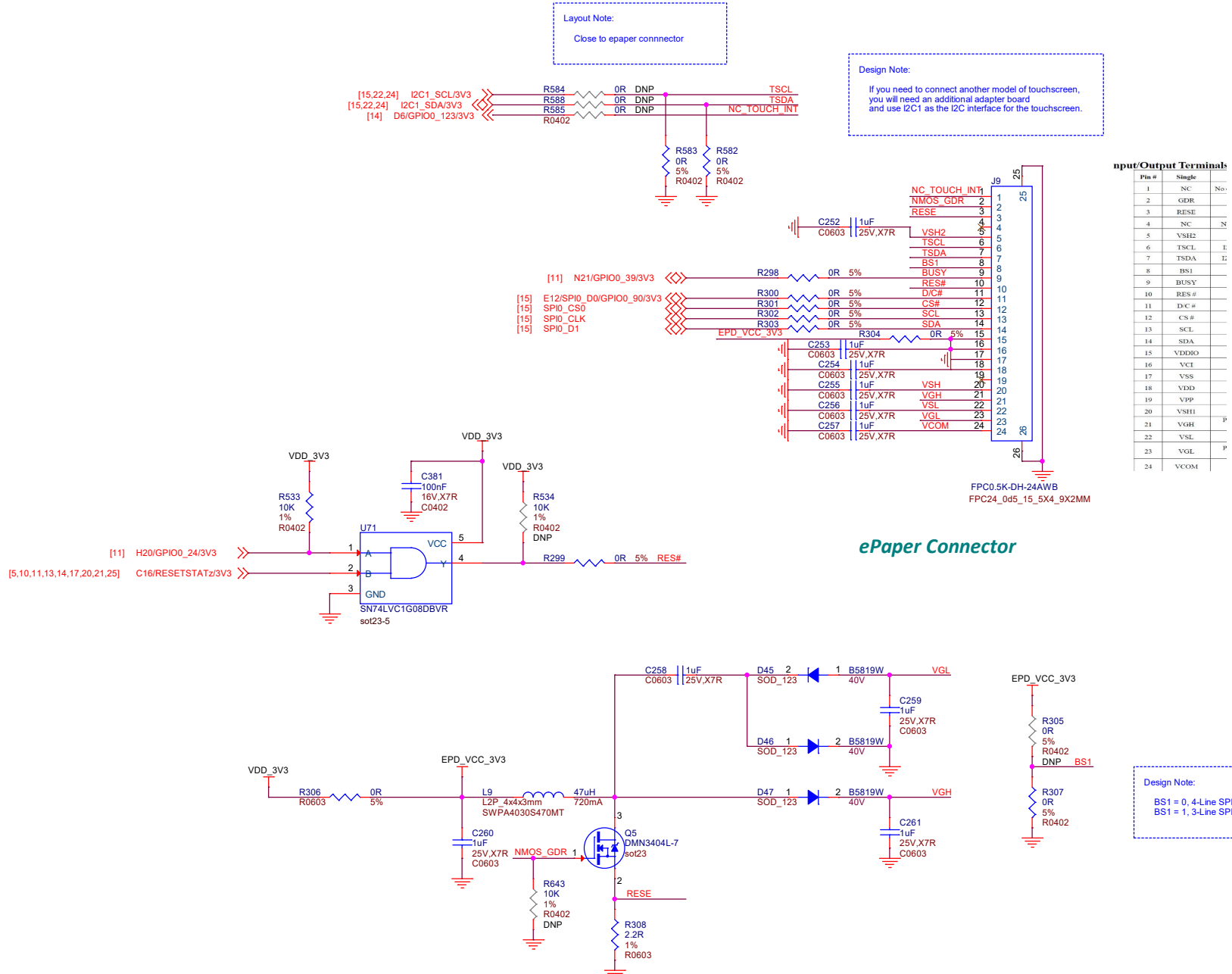
Input/Output Terminals

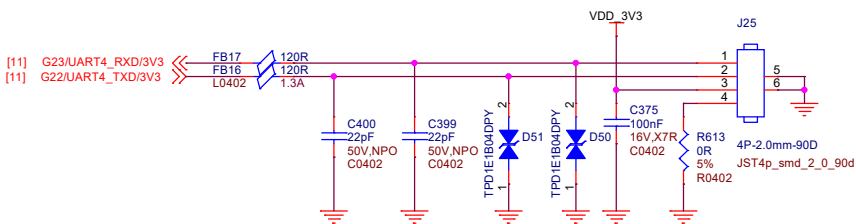
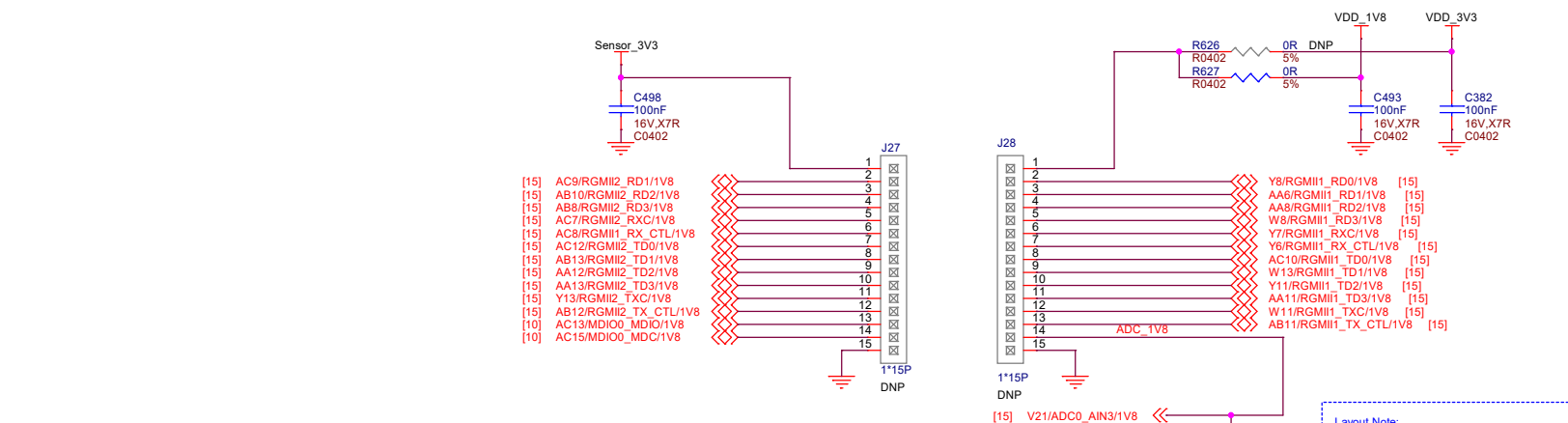
Pin #	Single	No.
1	NC	
2	GPIO	
3	RESE	
4	NC	N
5	VSH2	
6	TSCL	I
7	TSDA	I
8	BS1	
9	BUSY	
10	RES#	
11	D/C#	
12	CS#	
13	SCL	
14	SDA	
15	VDDO	
16	VCI	
17	VSS	
18	VDD	
19	VPP	
20	VSH1	P
21	VGH	P
22	VSL	
23	VGL	P
24	VCOM	

ePaper Connector

FPC0.5K-DH-24AWB
FPC24_0d5_15_5X4_9X2MM

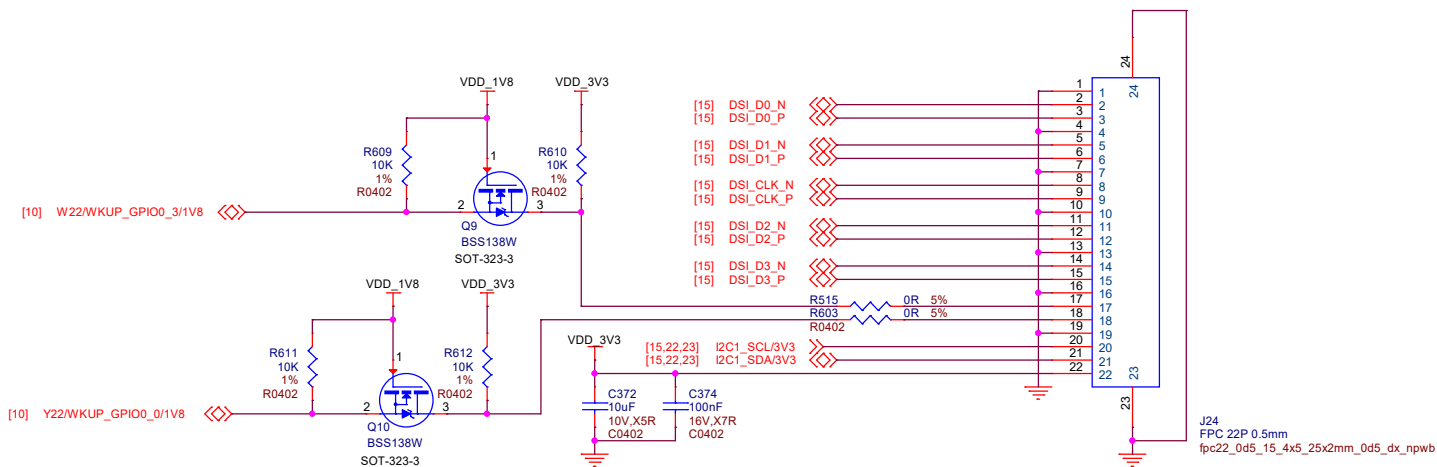
Design Note:
BS1 = 0, 4-Line SPI Mode
BS1 = 1, 3-Line SPI Mode





GROVE Connector

Other GPIOs



DSI Connector

