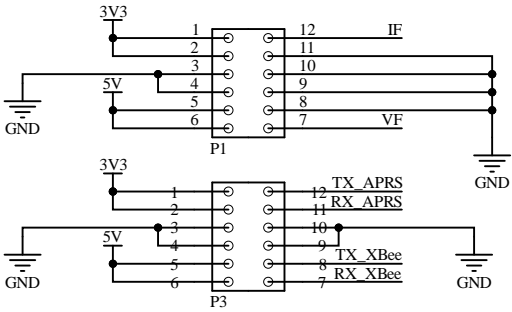
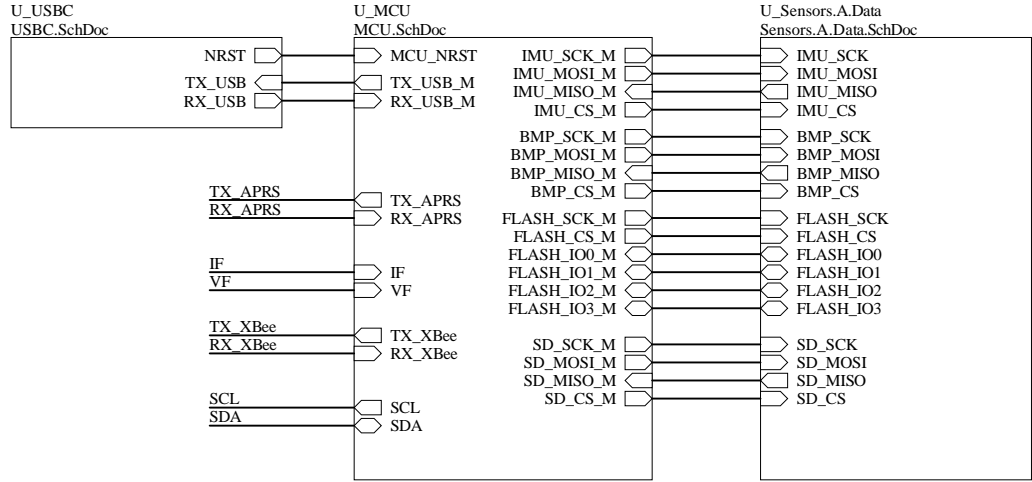


Connections



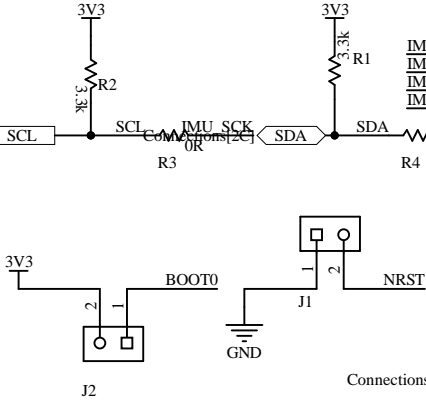
Project: Main_MCU_Board.PrjPcb		Cannot open file C:\Users\Mohammed\Downloads\FINAL LIT LOGO (1).png. File does not exist.
Sheet Title: Connections.SchDoc		
Size: A4	Schematic Designer: Mohammed Abdeen	
	PCB Designer: Mohammed Abdeen	
	Responsible Enginner: Mohammed Abdeen	
Date: 5/24/2025	Revision: A	Sheet: 1 / 4
Propriety of LIT @ Georgia Institute of Technology <i>Atlanta, Georgia, United States of America</i>		

Microcontroller

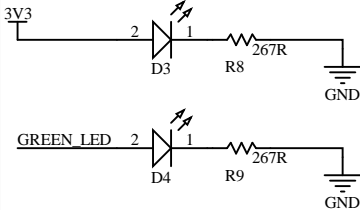
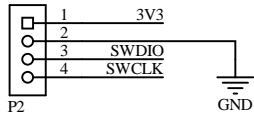
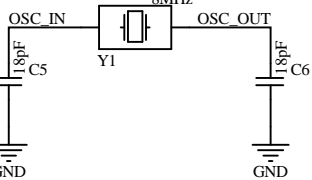
MCU

BMP_SCK → BMP_SCK_M → Connections[3B]
BMP_MISO → BMP_MISO_M → Connections[3B]
BMP_MOSI → BMP_MOSI_M → Connections[3B]
BMP_CS → BMP_CS_M → Connections[3B]

IMU_SCK → IMU_SCK_M → Connections[3B]
IMU_MISO → IMU_MISO_M → Connections[3B]
IMU_MOSI → IMU_MOSI_M → Connections[3B]
IMU_CS → IMU_CS_M → Connections[3B]

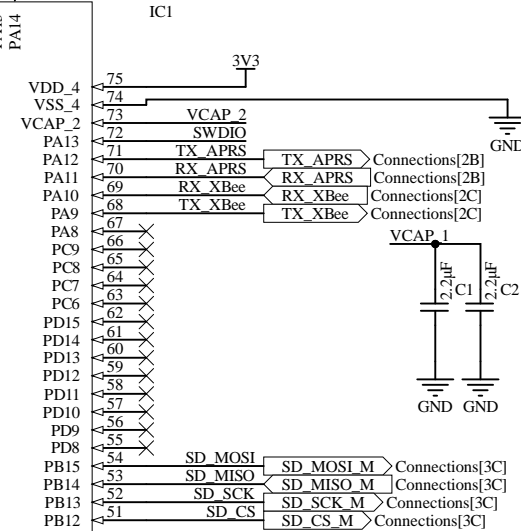
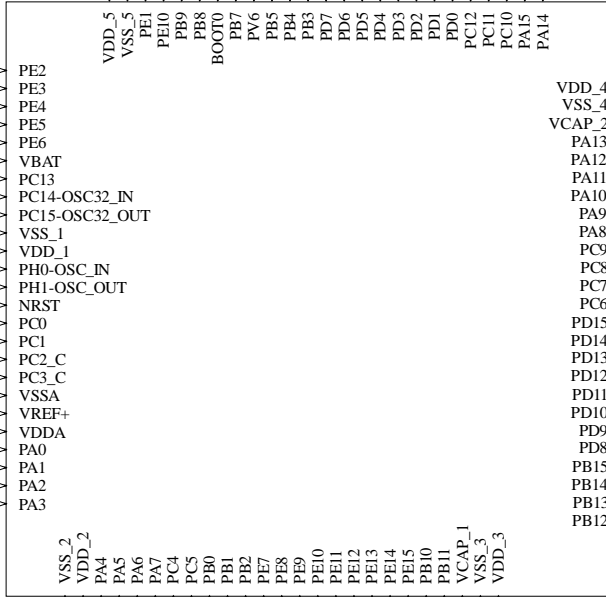
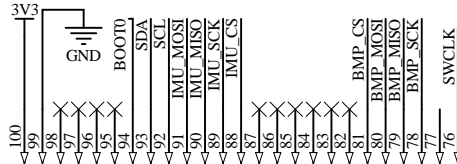
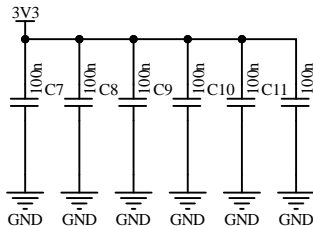


Connections[2B] → MCU_NRST → NRST
Connections[2B] → VF → IF



Insert 90R here for I=20mA

Insert 90R here for I=20mA

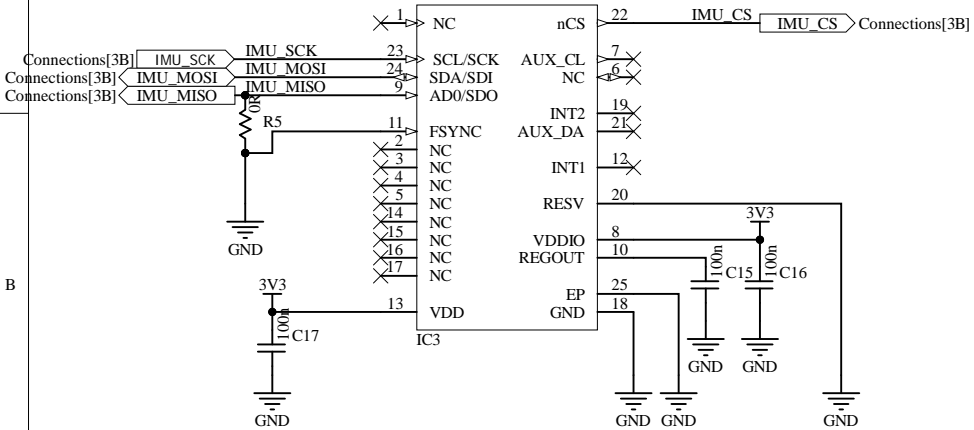


Properly shield the oscillator with ground vias
Place decoupling capacitors and crystall oscillator as close as possible to the MCU!

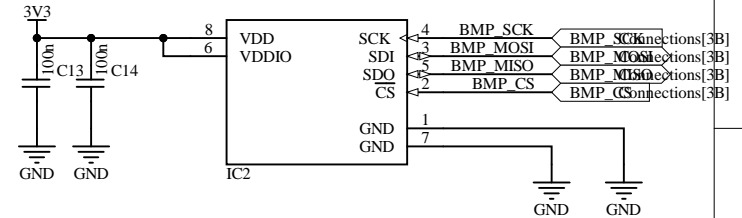
Project: Main_MCU_Board.PrjPcb		Cannot open file C:\Users\Mohammed\Downloads\FINAL LIT LOGO (1).png. File does not exist.
Sheet Title: MCU.SchDoc		
Size: A4	Schematic Designer: Mohammed Abdeen	
	PCB Designer: Mohammed Abdeen	
	Responsible Enginner: Mohammed Abdeen	
Date: 5/24/2025	Revision: A	Sheet: 2 / 4
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Sensor and Data

IMU



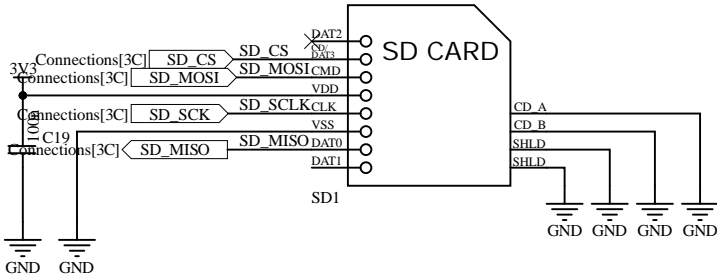
Pressure Sensor



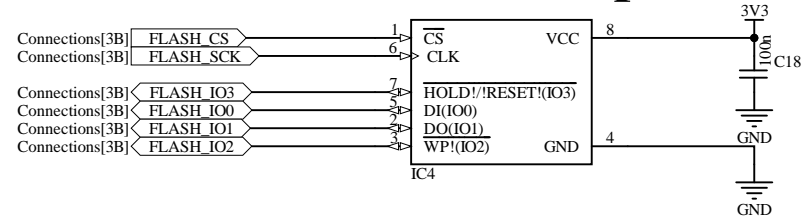
Place decoupling capacitors as close as possible

Close High Speed traces reasonably far away and ensure proper ground return path

SD-Card Slot

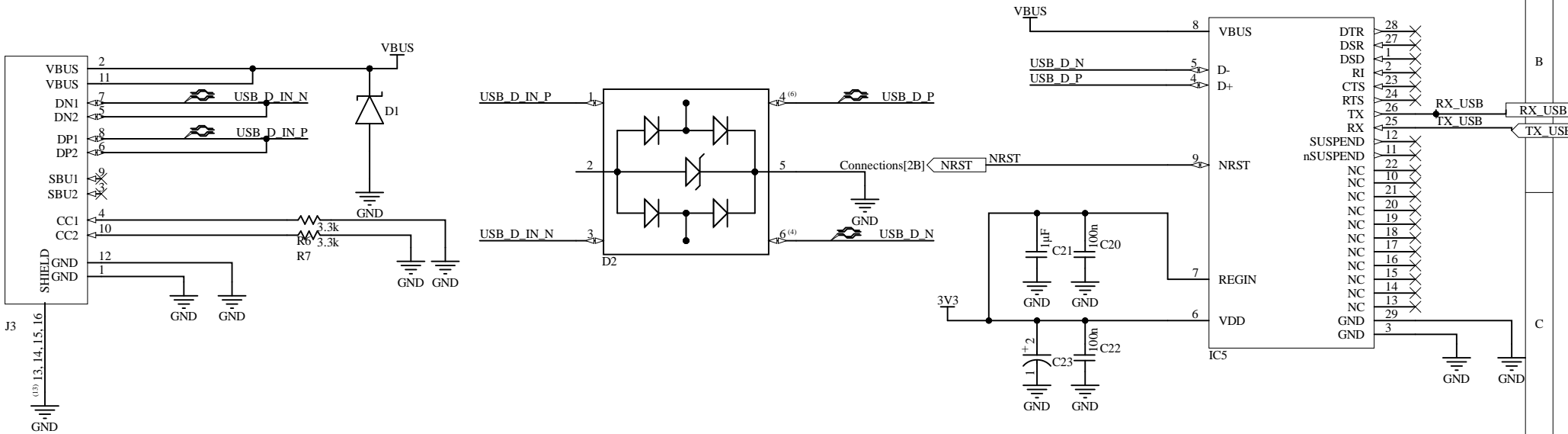


Flashchip



Project: Main_MCU_Board.PrjPcb Sheet Title: Sensors.A.Data.SchDoc		Cannot open file C:\Users\Mohammed\Downloads\FINAL LIT LOGO (1).png. File does not exist.
Size: A4	Schematic Designer: <i>Mohammed Abdeen</i> PCB Designer: <i>Mohammed Abdeen</i> Responsible Engineer: <i>Mohammed Abdeen</i>	
Date: 5/24/2025 Revision: A Sheet: 3 / 4		
Propriety of LIT @ Georgia Institute of Technology Atlanta, Georgia, United States of America		

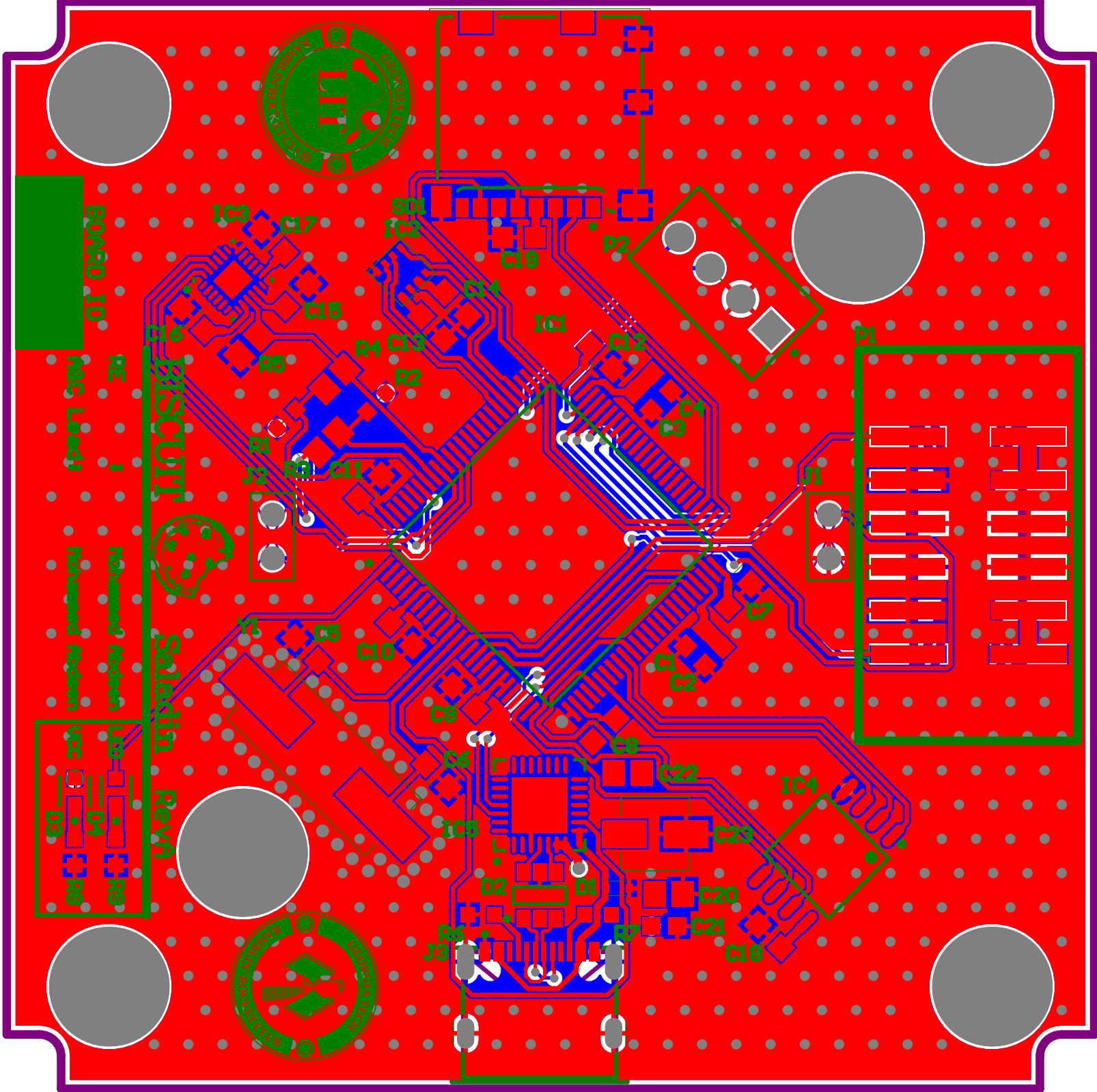
USB-C



^Δ Place decoupling capacitors as close as possible

Close High Speed traces reasonably far away and ensure proper ground return path

Project: <i>Main_MCU_Board.PrjPcb</i> Sheet Title: <i>USBC.SchDoc</i>		Cannot open file C:\Users\Mohammed\Downloads\FINAL LIT LOGO (1).png. File does not exist.
Size: A4	Schematic Designer: <i>Mohammed Abdeen</i> PCB Designer: <i>Mohammed Abdeen</i> Responsible Enginner: <i>Mohammed Abdeen</i>	
Date: 5/24/2025 Revision: A Sheet: 4 / 4		
Propriety of LIT @ Georgia Institute of Technology Atlanta, Georgia, United States of America		



Comment	Description	Designator	Footprint	LibRef	Quantity
CL10A225K08NNNC	2.2 μ F \pm 10% 16V Ceramc Capacitor X5R0603 (1608 Metric)	C1, C2, C3, C4	0603-CAP	CAP-0603-16V	4
600F180FT250XT	18 μ F \pm 1% 250V Ceramic Capacitor C0G, NPO 0805 (2012 Metric)	C5, C6	CAP-0805	CAP-0805-250V-18 μ F	2
KGM21NR71E104KT	0.1 μ F \pm 10% 25V Ceramic Capacitor X7R0805 (2012 Metric)	C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19	CAP-0805	CAP-0805-25V-100n	13
KGM21NR71E104KT	0.1 μ F \pm 10% 25V Ceramic Capacitor X7R0805 (2012 Metric)	C20, C22	0805-RES	CAP-0805-25V-100n	2
00603C10528VAC7867	1 μ F -20% +80% 10V Ceramic Capacitor Y5V (F) 0603 (1608 Metric)	C21	0603-CAP	CAP-0603-10V-1 μ F	1
865080640004	4.7 μ F 50 V Aluminum Electrolytic Capacitors Radial, Can - SMD 2000 Hrs @ 105°C	C23	865080640004	CAP-RADIALSMD- 4.7 μ F(BIAS)	1
PEED5V0X1UB, 135	8V (Typ) 5amp 1.5A (8/20 μ s) 1pp Tie Diode Surface Mount SOD-523	D1	PEED5V0X1UB, 135	TVS-8V-5.8V	1
USBL05-2S06	17V 5amp 5A (8/20 μ s) 1pp Tie Diode Surface Mount SOT-23-6	D2	SOT89P280X145-6N	TVS-6V-17V	1
LTST-C190KGKT	Green 571nm LED Indication - Discrete 2V 0603 (1608 Metric)	D3, D4	FP-LTST-C190KGKT- MFG	LED-0603-Green_	2
STM32F723VGT6	ARM6Cortex6M7 STM32H7 Microcontroller IC 32- Bit Single-Core 550MHz 1MB (1Mx8) FLASH 100LQFP (14x14)	IC1	QFP50P1600X1600X16 0-100N	STM32F723VGT6	1
BME280	Pressure Sensor 4.35PSI - 15.95PSI (30kPa - 110kPa) Absolute 10b-8-SMD	IC2	BME280	BME280	1
IQM-20649	Accelerometer, Gyroscope, Temperature, 6 Axis Sensor I2C, SPI Output	IC3	24-QFN	IMU-IQM20649-SPI	1
W25Q32JMSIQ	FLASH- NORMemory IC 32Mbit SPI - Quad I/O 133MHz 8-SOIC	IC4	F-SOIC127P790X216- 8N	Flashchip-32MBIT- 3V3	1
CP2102-GMR	USB Bridge, USB to UART/USB 2.0 UART Interface 28-QFN (5x5)	IC5	28-VQFN	USBtoUART	1
61300211121	Connector Header Through Hole 2 position 0.100" (2.54mm)	J1, J2	HEADER-2-Pin	Header-2-Pin-Male	2
USB4105-GF-A	USB-C (USB TYPE-C) USB 2.0 Receptacle Connector 24 (16+8 Dummy) Position Surface Mount, Right Angle, Through Hole	J3	USB4105-GF-A	USB-C	1
HTST-106-01-L-DV-P- TR	Connector Header Through Hole 12 position 0.100" (2.54mm)	P1	HTST-106-01-L-DV-P- TR	BoardToBoard_Botto m	1
22-27-2041	Male Header, R1ch 2.54mm, 1 x 4 Position, Height 11.7 mm, Tail Length 3.96 mm, RoHS Bulk	P2	MOLX-22-27-2041_V	Header-4-Pin	1
NPPC0624RMSRC	12 Position Receptacle Connector 0.100" (2.54mm) Through Hole Gold	P3	NPPC0624RMSRC	BoardToBoard_Top	1
ERA-3AEB332V	3.3k Ohms \pm 0.1% 0.1W, 1/10W Chip Resistor 0603 (1608 Metric) Automotive AEC-Q200 Thin Film	R1, R2, R6, R7	0603-RES	RES-0603-3.3k	4
ERJ-6GEYF00V	0 Ohms Jumper Chip Resistor 0805 (2012 Metric) Automotive AEC-Q200 Thick Film	R3, R4, R5	0805-RES	RES-0805-0R	3
ERJ-3EHF2670V	267 Ohms \pm 1% 0.1W, 1/10W Chip Resistor 0603 (1608 Metric) Automotive AEC-Q200 Thick Film	R8, R9	0603-RES	RES-0603-267R	2
1040310811	10 (8+2) Position Card Connector Secure Digital - microSD [®] Surface Mount, Right Angle Gold	SD1	MOLX-104031-0811_V	microSD-card- connector	1
ABLS8.000MHZ-B2-T 49US	8 MHz \pm 20ppm Crystal 18pF 80 Ohms HC 49US	Y1	ABLS8.000MHZ-B2-T	OSC-8MHz-3V3	1