



EFM8BB1 Busy Bee STK


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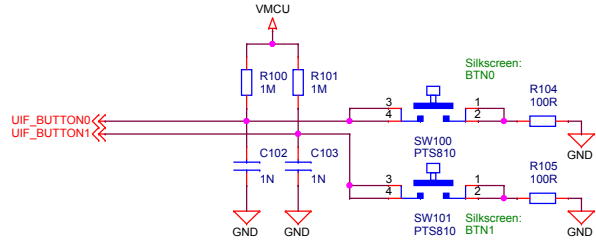
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Revision History

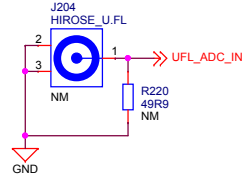
Rev.	Description
A01	Update to the STK platform

 SILICON LABS		Board Name	
		EFM8BB1 Busy Bee STK	
Designed MSV		Approved RGU	
		Page Title	
Size A3		Board Number BRD5200B	
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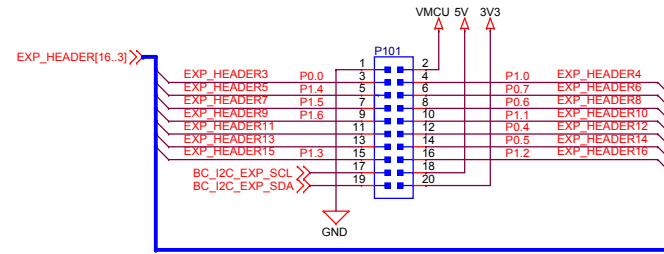
Push Buttons



U.FL ADC Connection



EXP Header



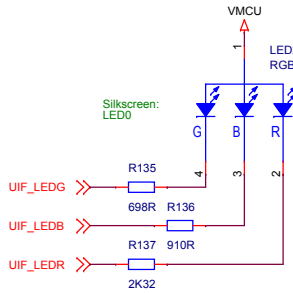
EXP-Header Functionality

** Indicates potential STK hardware conflicts

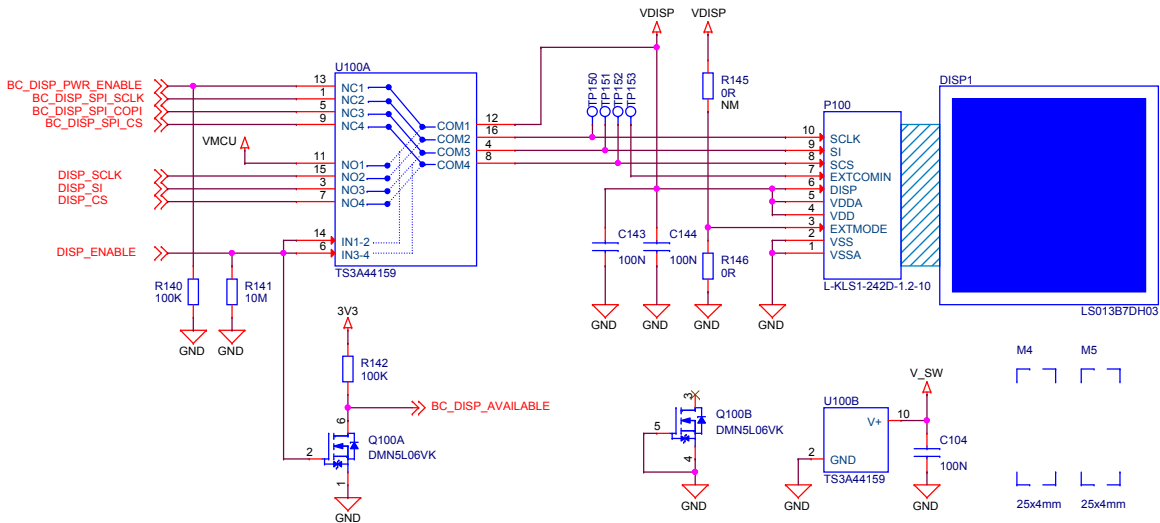
1	GND				
3	P0.0		CMP0.0/ADC0.0		
5	P1.4		CMP1.4/ADC0.12	**	STK LED0
7	P1.5		CMP1.5/ADC0.13	**	STK LED1
9	P1.6		CMP1.6/ADC0.14	**	STK LED2
11					
13					
15	P1.3	I2C0_SCL	CMP1.3/ADC0.11		
17			Reserved for EXP Board Identification		
19			Reserved for EXP Board Identification		

2	VMCU				
4	P1.0	SPI0_MOSI	CMP1.0/ADC0.8		
6	P0.7	SPI0_MISO	CMP0.7/ADC0.7		
8	P0.6	SPI0_SCK	CMP0.6/ADC0.6		
10	P1.1	SPI0_NSS	CMP1.1/ADC0.9		
12	P0.4	UART0_TX	CMP0.4/ADC0.4		
14	P0.5	UART0_RX	CMP0.5/ADC0.5		
16	P1.2	I2C0_SDA	CMP1.2/ADC0.10		
18	5V				
20	3V3				

RGB LED



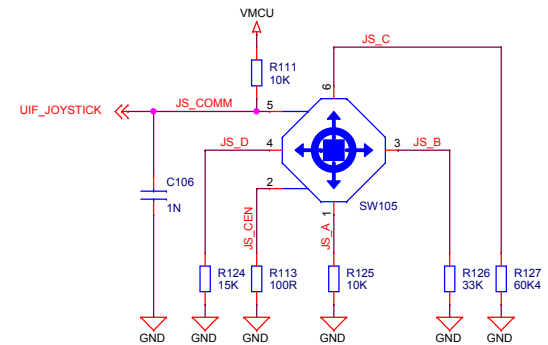
Memory LCD-TFT Display & Multiplexer



The EFM8 always controls ownership of the display using the DISP_ENABLE signal.

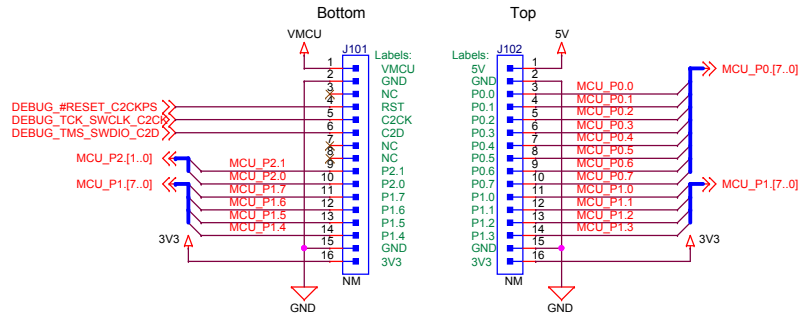
DISP_ENABLE	Connected	VDISP	BC_DISP_AVAILABLE
1	MCU	VMCU	GND
0	BC	BC_DISP_PWR_ENABLE	3V3

Analog Joystick

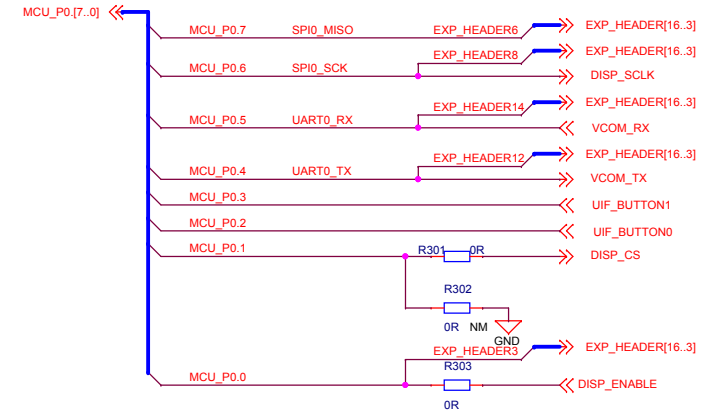


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		User Interface	
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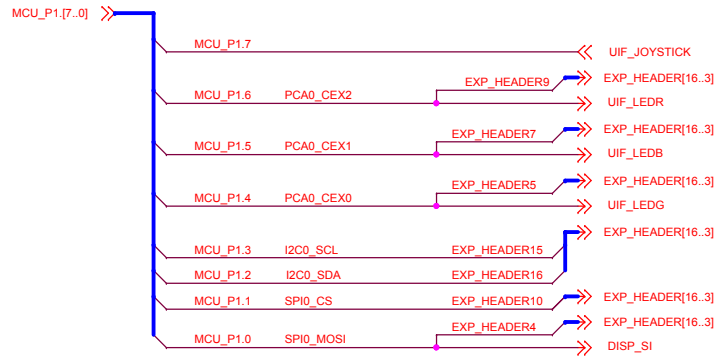
Breakout Connections



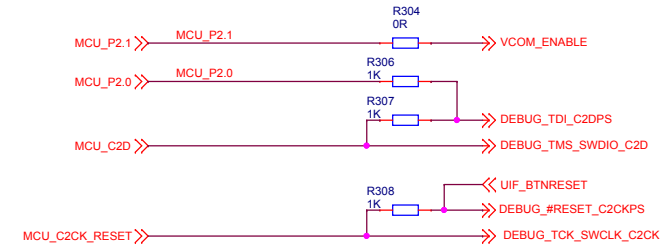
P0 Connections



P1 Connections

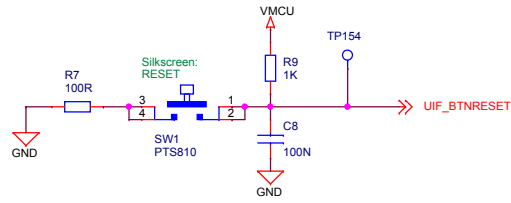


P2 & Debug Connections



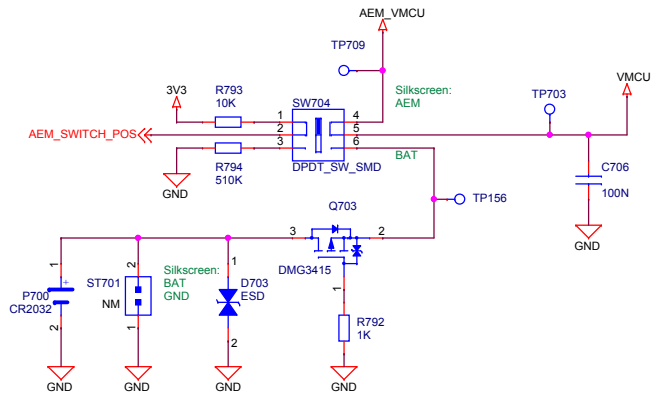
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Designed MSV		Page Title	
		Signal Assignments	
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Reset Push Button

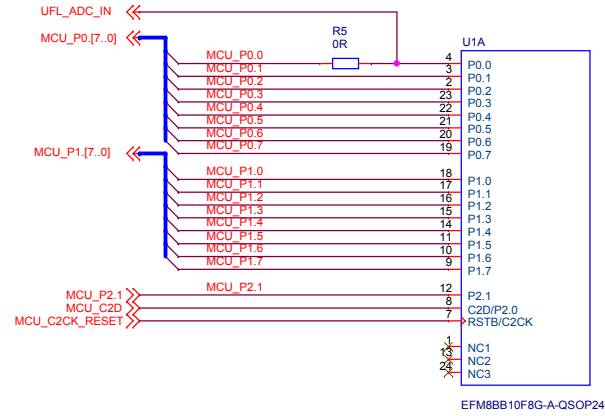


Power Select Switch: AEM/BAT

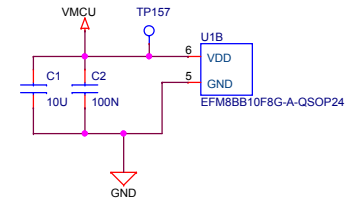
SWITCH POS	MODE DESCRIPTION
AEM	AEM Enabled, VMCU sourced from external 3.3V LDO powered by BC USB 5V supply
BAT	AEM Disabled, VMCU sourced from coin-cell battery or external power supply




EFM8 I/O

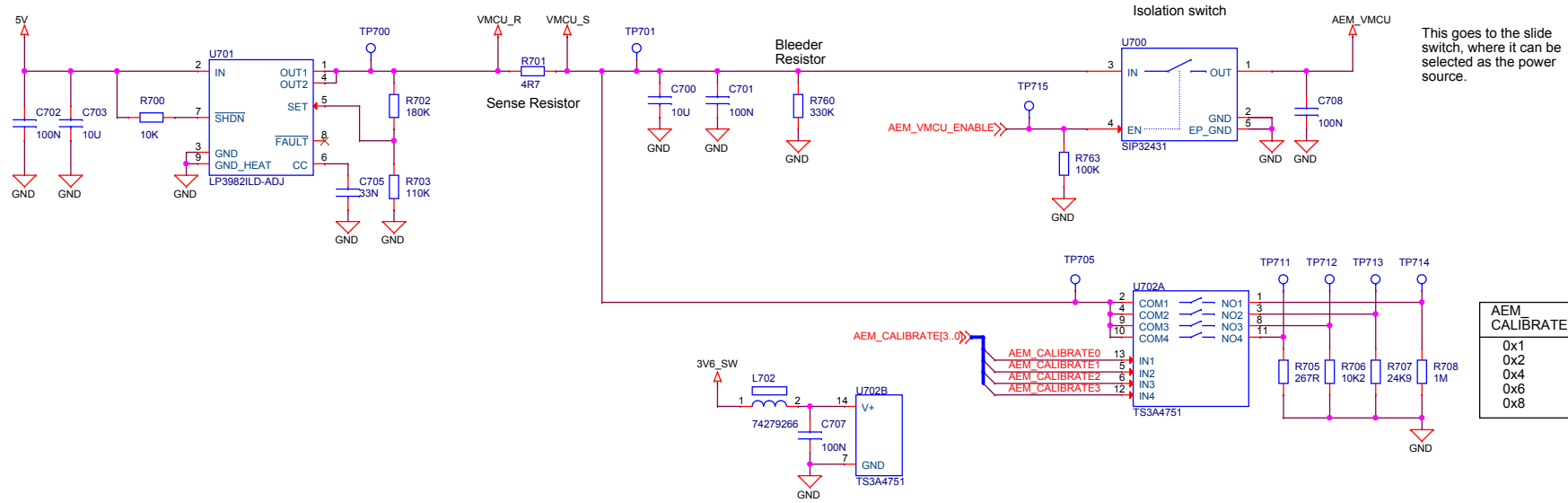


EFM8 Power and Decoupling



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		EFM8 Power & I/O	
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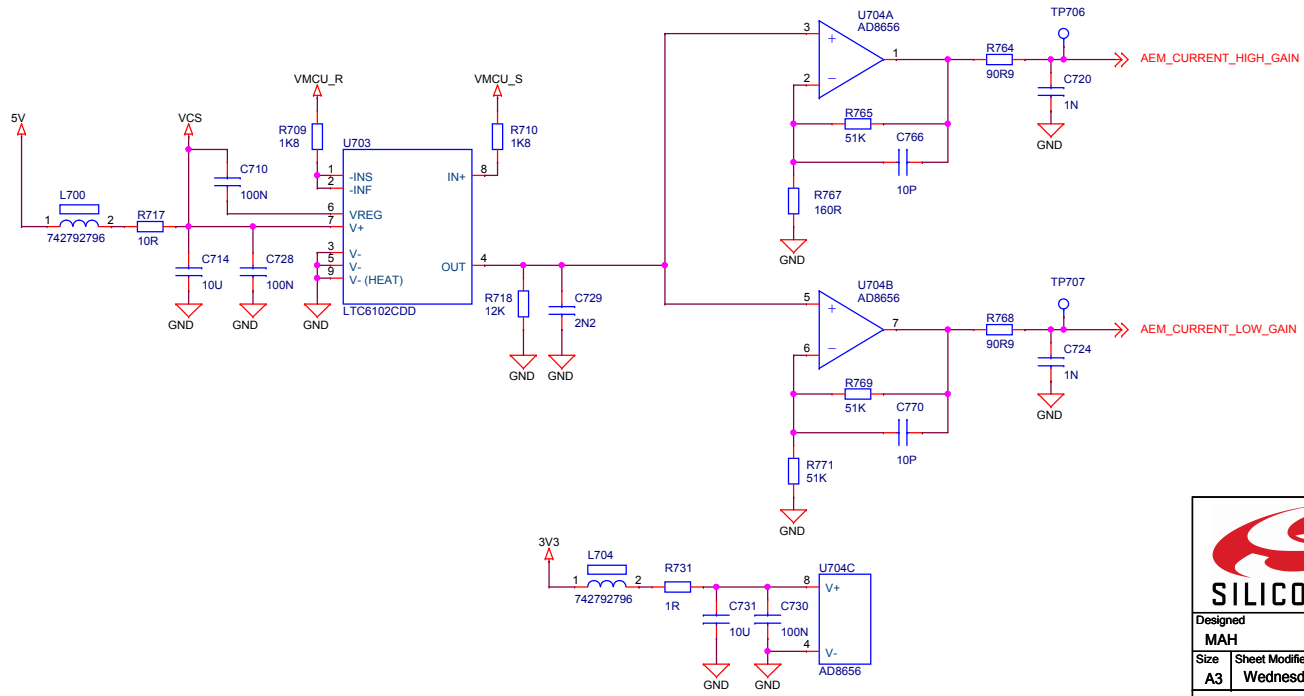
MCU Power Regulator




This goes to the slide switch, where it can be selected as the power source.

AEM CALIBRATE	Current
0x1	3.30 uA
0x2	132.5 uA
0x4	323.5 uA
0x6	456.1 uA
0x8	12.36 mA

Advanced Energy Monitoring

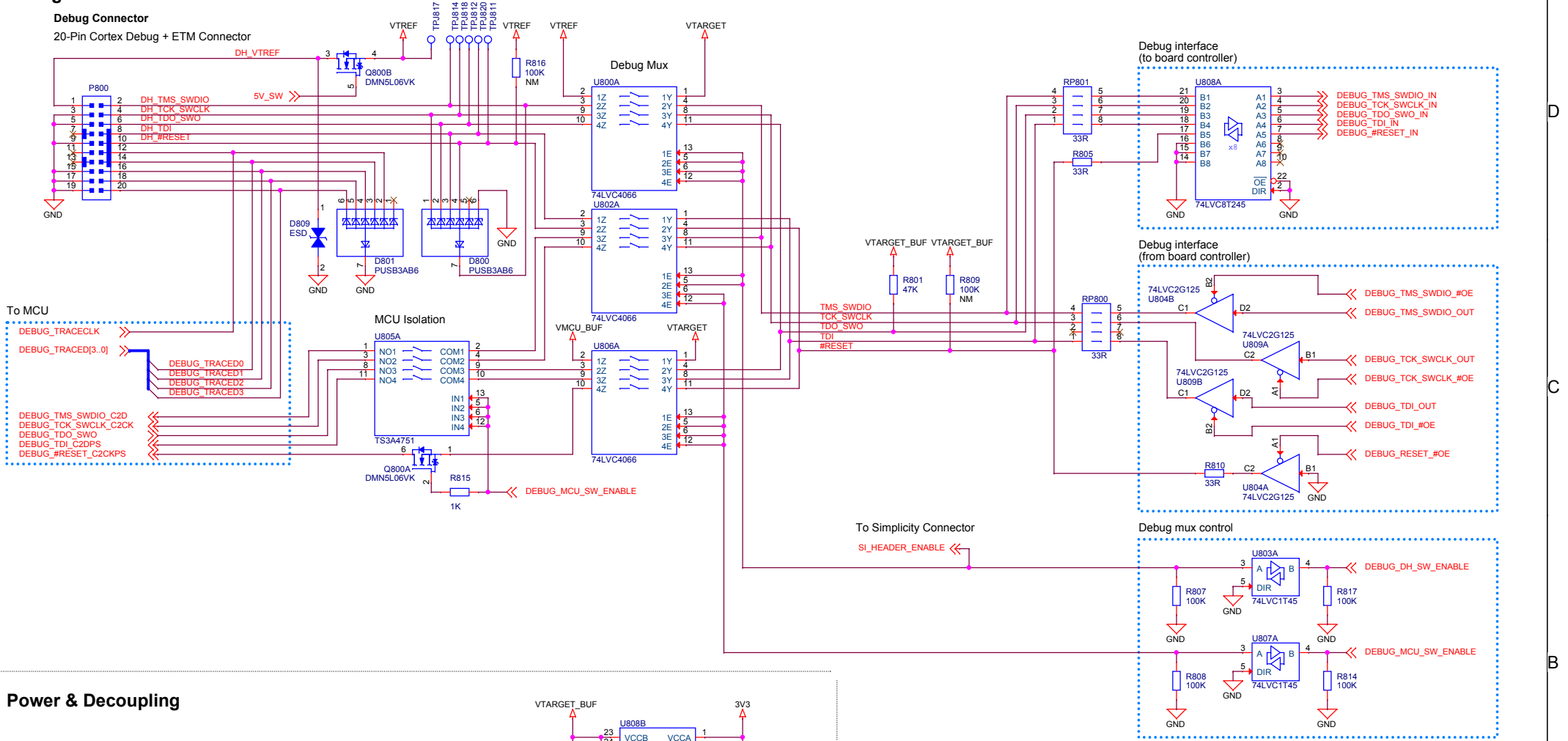


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		Target Voltage Supply & AEM	
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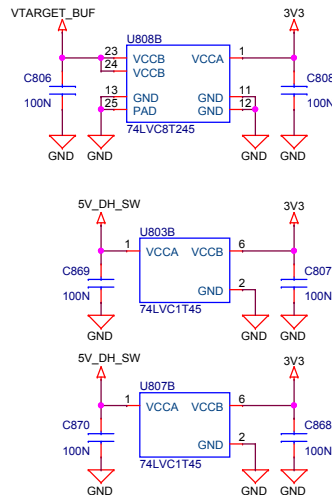
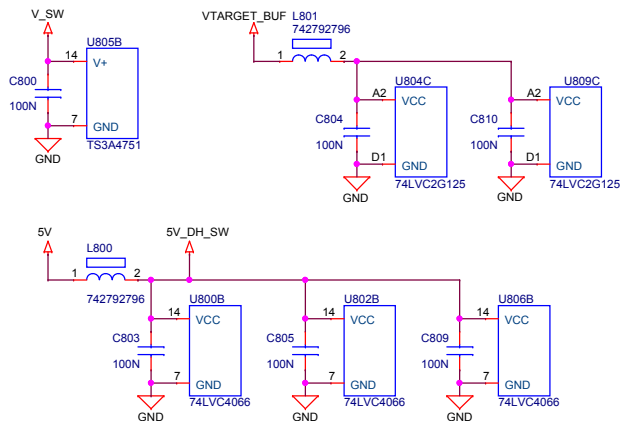
Debug Mux

Debug Connector

20-Pin Cortex Debug + ETM Connector



Power & Decoupling



Debug Mode	DH_SW_ENABLE	MCU_SW_ENABLE
MCU	0	1
Debug Out	1	0
Debug In	1	1
Debug Off	0	0

Debug Mode	VTARGET Source	VTREF Source
MCU	VMCU	None
Debug Out	VTREF (EXT)	External
Debug In	VMCU	VMCU_BUF
Debug Off	None	None

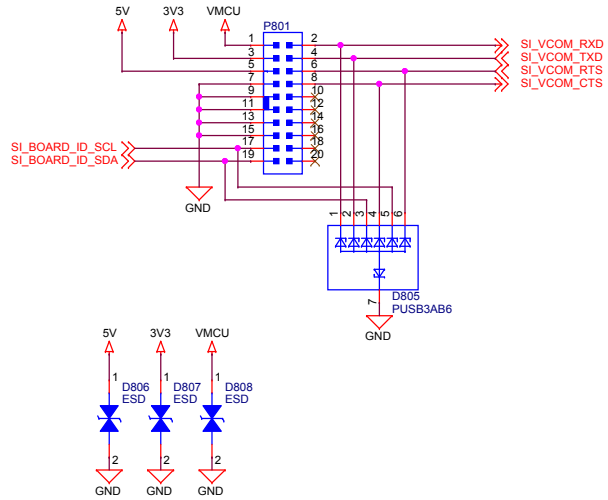
Board Name
EFM8BB1 Busy Bee STK

Page Title
Debug Interface

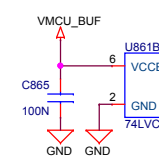
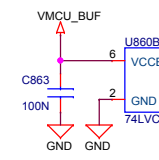
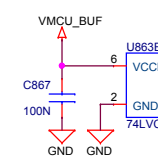
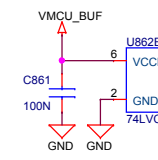
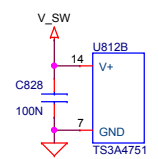
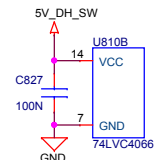
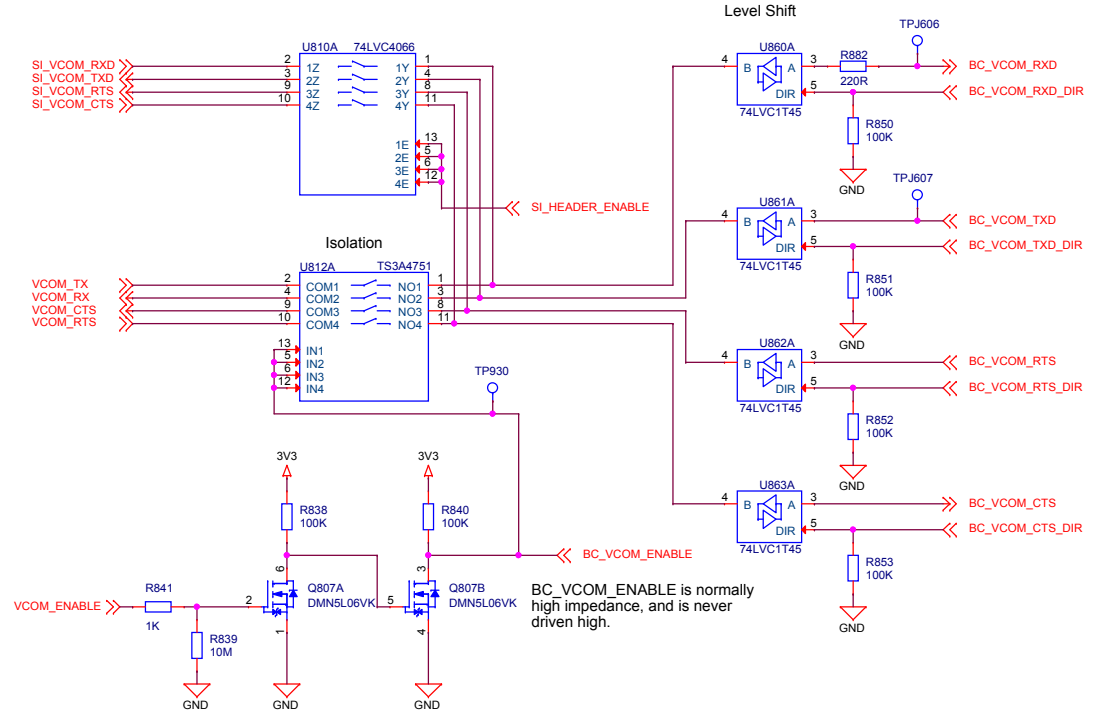
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Simplicity Connector

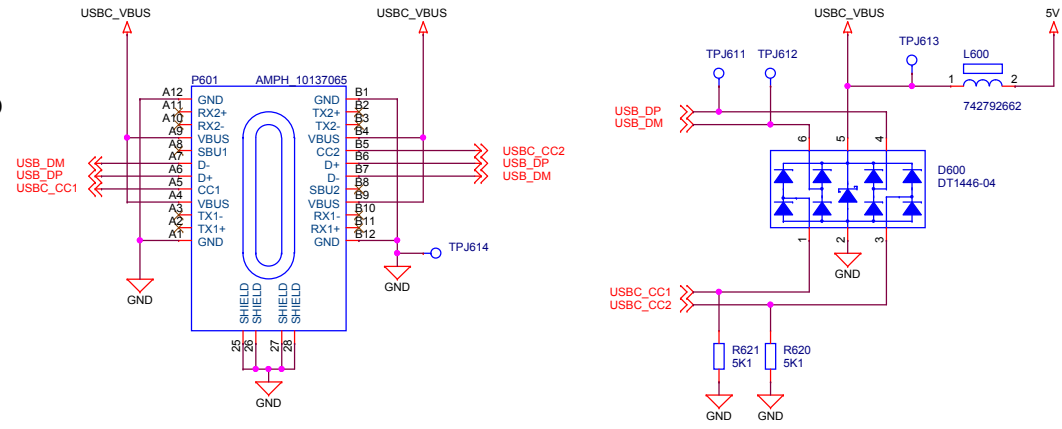


VCOM Interface

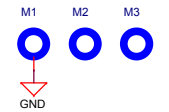
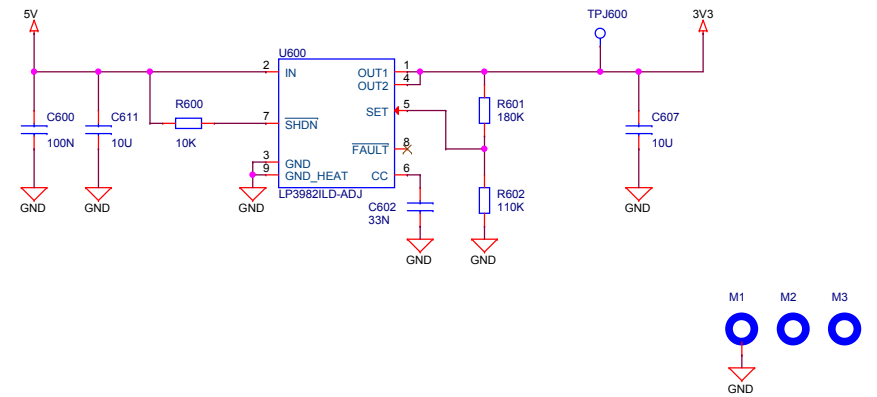


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		Simplicity & VCOM	
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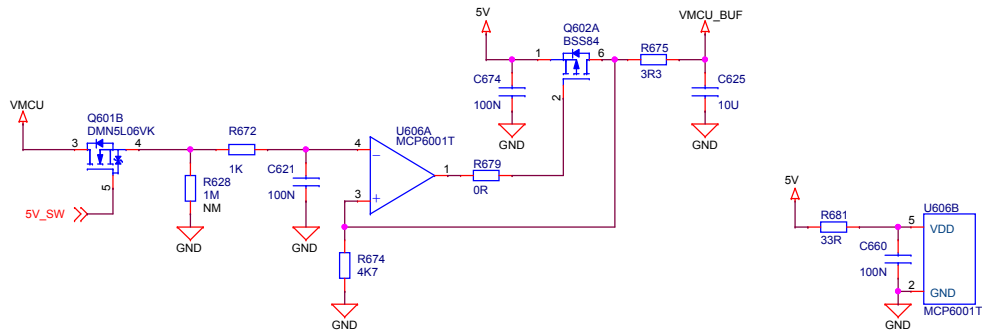
J-Link USB Port



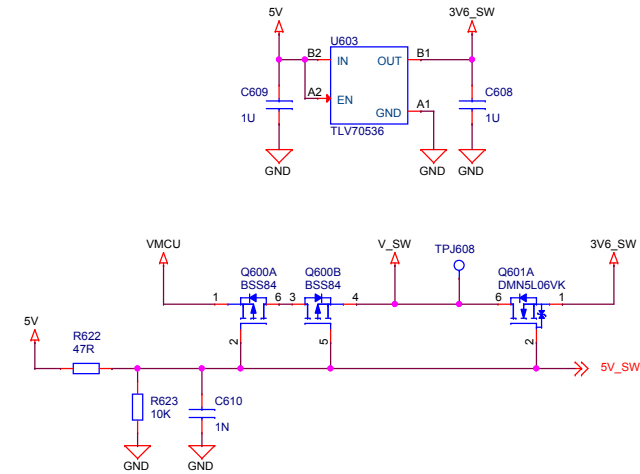
3V3 Regulator



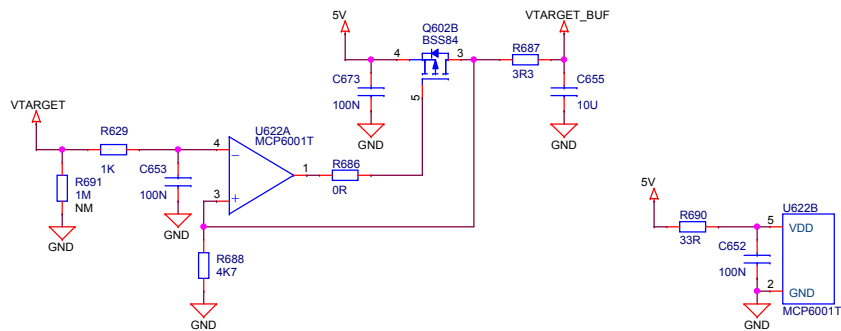
VMCU Voltage Mirror



Power Supply for Analog Switches



VTARGET Voltage Mirror

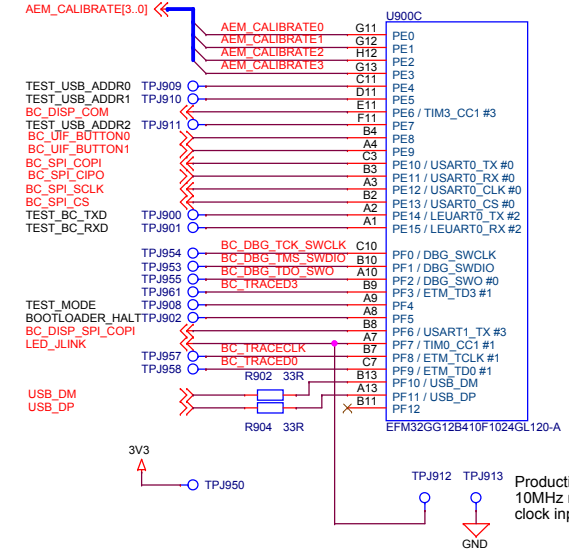
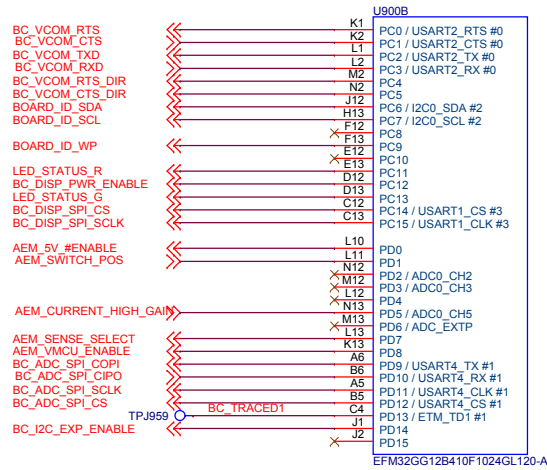
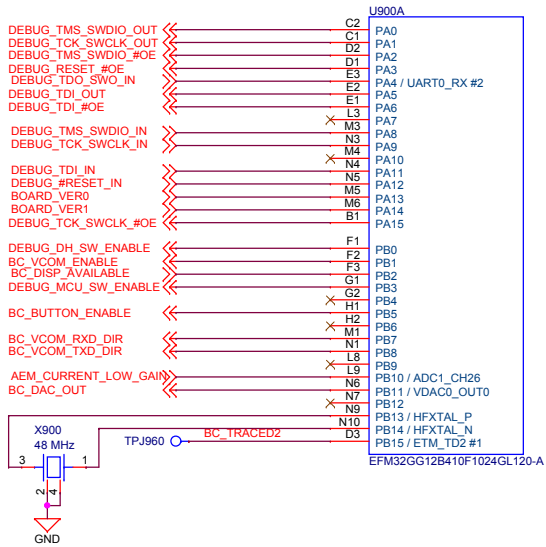


J-Link USB Cable	Q600 State	Q601A State	V_SW	VMCU_SENSE
Connected	OFF	ON	3.6V	VMCU
Disconnected	ON	OFF	VMCU	Isolated

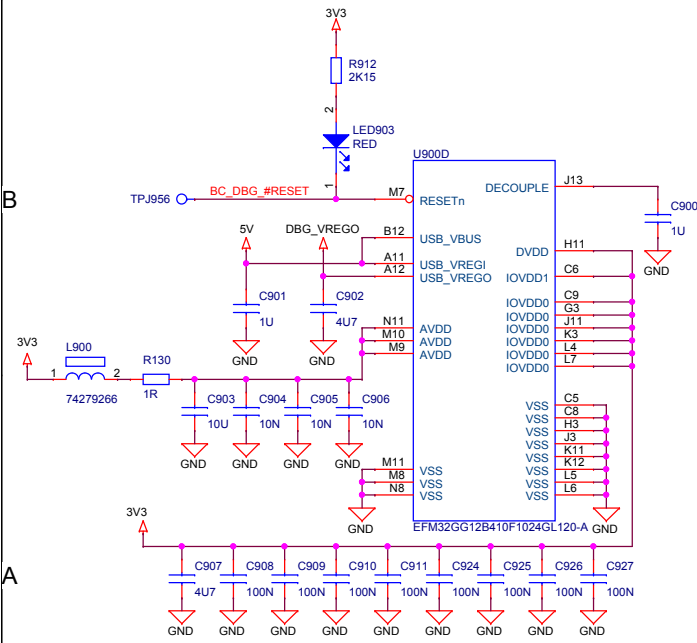
Isolation switches are powered by 3V6_SW when the USB cable is connected, otherwise by VMCU.

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		Power	
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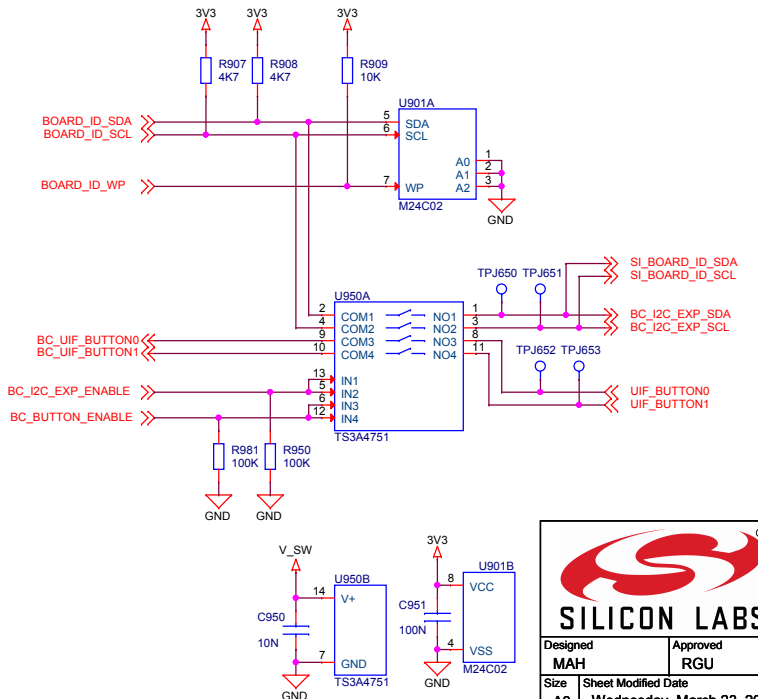
Board Controller



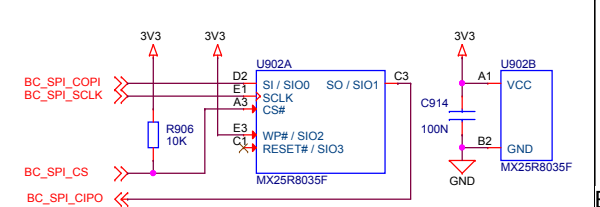
Power & Decoupling



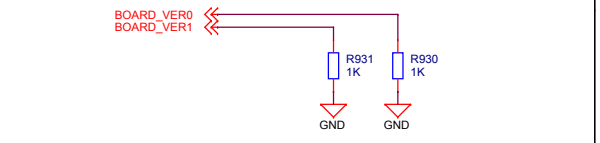
Board ID & Button Isolation



BC Serial Flash

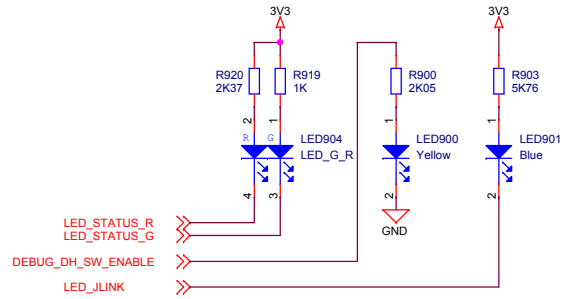


Board Version

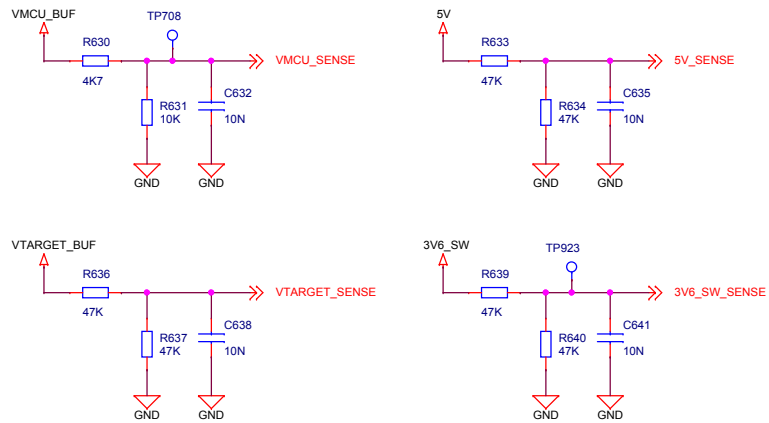


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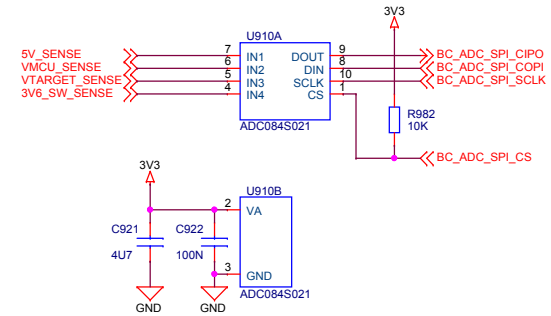
Indicator LEDs




BC Voltage Sense



BC Voltage Sense ADC



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