



EFM8LB1 Laser Bee STK	
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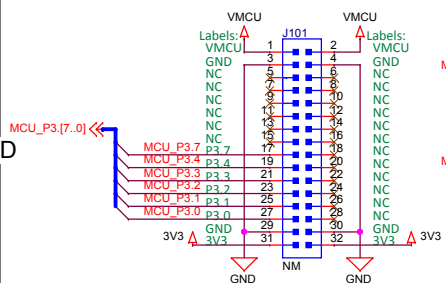
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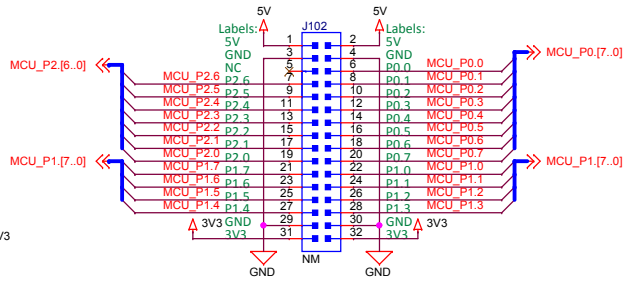
Revision History	
Rev.	Description
A00	Initial release.
A01	Changed to surface mounted joystick and smaller reset switch.
A02	Cleaned up sine generator circuit. Updated silk print.
A03	Updated EFM8LB1 revision. Moved reset switch. Fixed EXP pinout description.
A04	Un-mounted D801.
A05	Updated EFM8LB1 revision.

		Schematic Title	
		EFM8LB1 Laser Bee STK	
Designed: MRW Approved: JNO		Page Title	
		Title Page	
Size: A3	BOM Doc No:	Document number	Revision
		BRD5300A	A05
Design Created Date:	Sheet Created Date:	Sheet Modified Date:	Sheet
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5 Breakout Connections

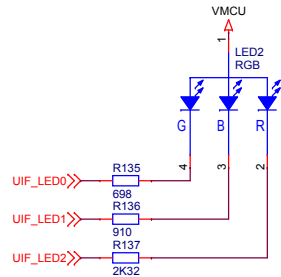


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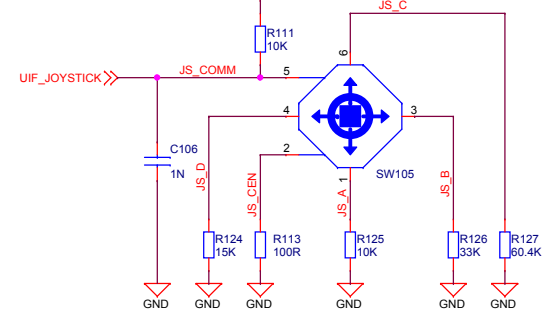


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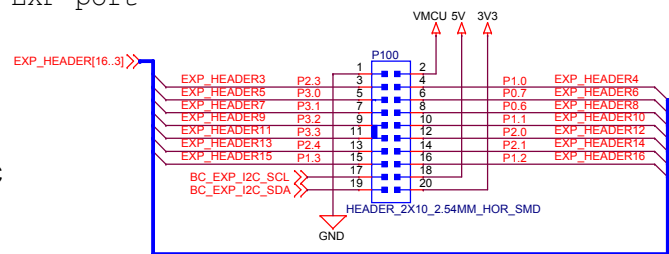
RGB LED



2 Analog Joystick



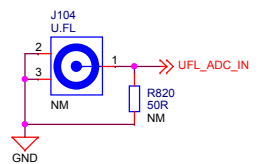
EXP port



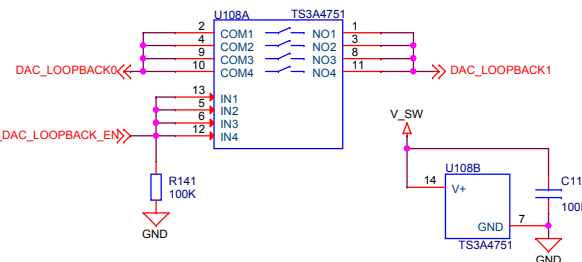
EXP-Header Functionality

1	GND		CMP1.5/ADC0.16
3	P2.3		DAC0
5	P3.0		DAC1
7	P3.1		DAC2
9	P3.2		DAC3
11	P3.3		CMP1.6/ADC0.17
13	P2.4		ADC0.9
15	P1.3		I2C0_SCL
17	Reserved for EXP Board Identification		
19	Reserved for EXP Board Identification		
2	VMCU		
4	P1.0	SPI0_MOSI	CMP1.1/ADC0.6
6	P0.7	SPI0_MISO	CMP0.5/ADC0.5
8	P0.6	SPI0_SCK	CMP0.4/ADC0.5
10	P1.1	SPI0_NSS	CMP0.7/ADC0.7
12	P2.0	UART1_TX	CMP1.3/ADC0.14
14	P2.1	UART1_RX	CMP1.4/ADC0.15
16	P1.2	I2C0_SDA	CMP0.8/ADC0.8
18	5V		
20	3V3		

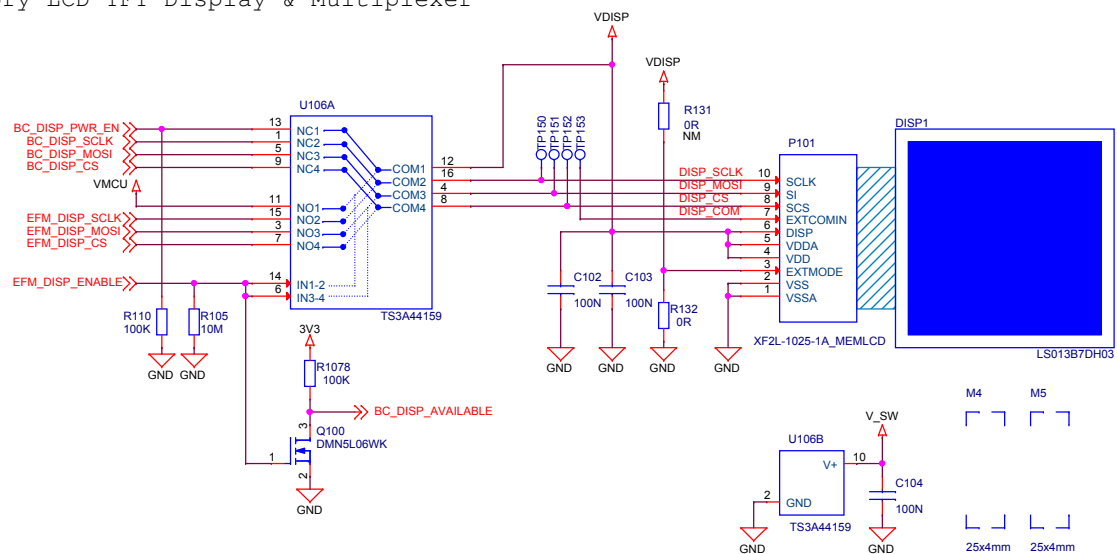
U.FL ADC Connection



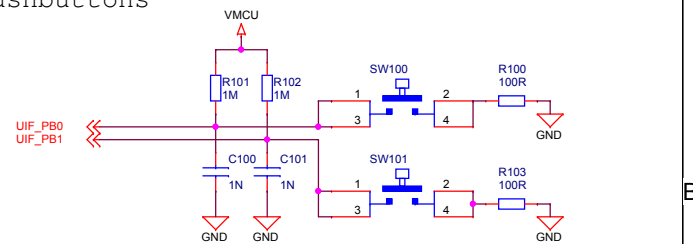
DAC Loopback Analog Switch



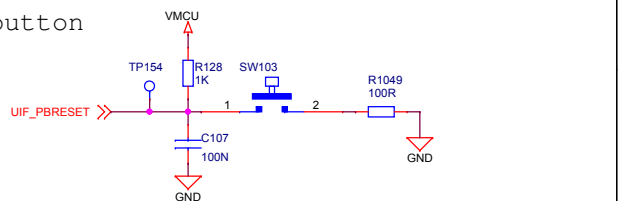
Memory LCD-TFT Display & Multiplexer



User pushbuttons



RESET Pushbutton



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

EFM_DISP_ENABLE	DISP_CTRL	VDISP
0	BC	BC_DISP_PWR_EN
1	EFM	VMCU

/ STK

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		User Interface	
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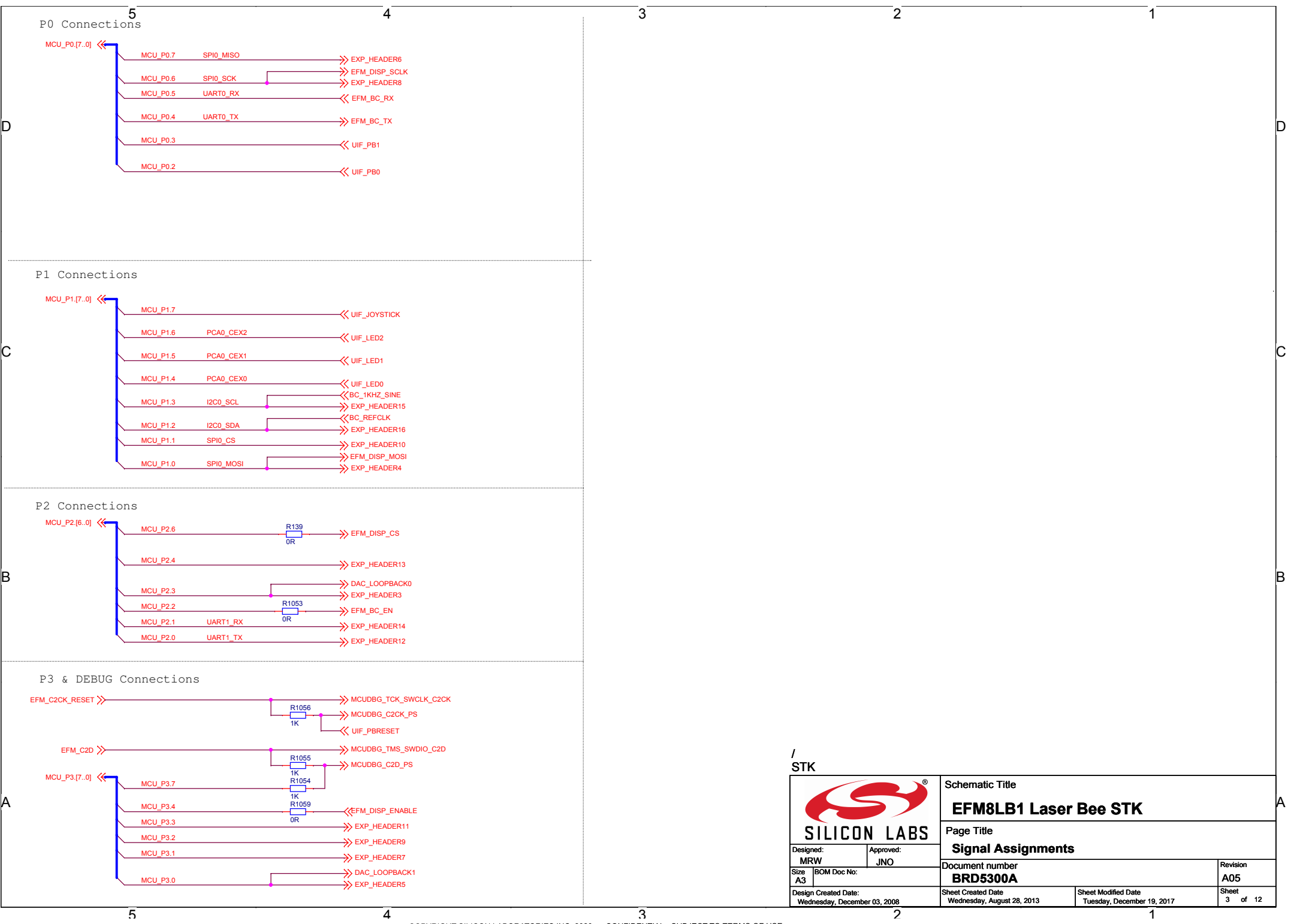
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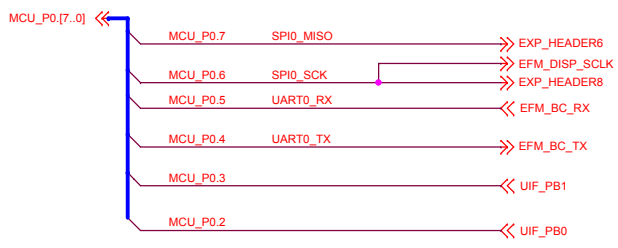
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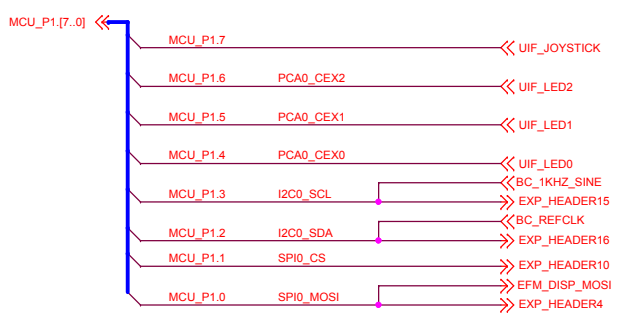
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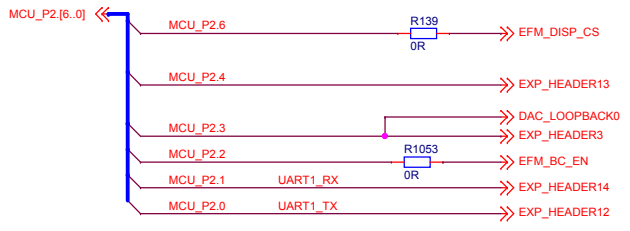
P0 Connections



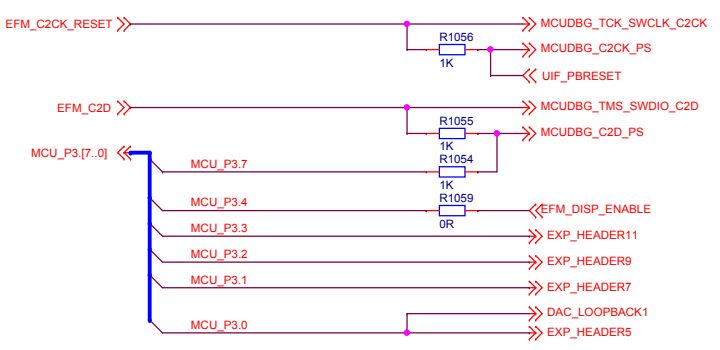
P1 Connections




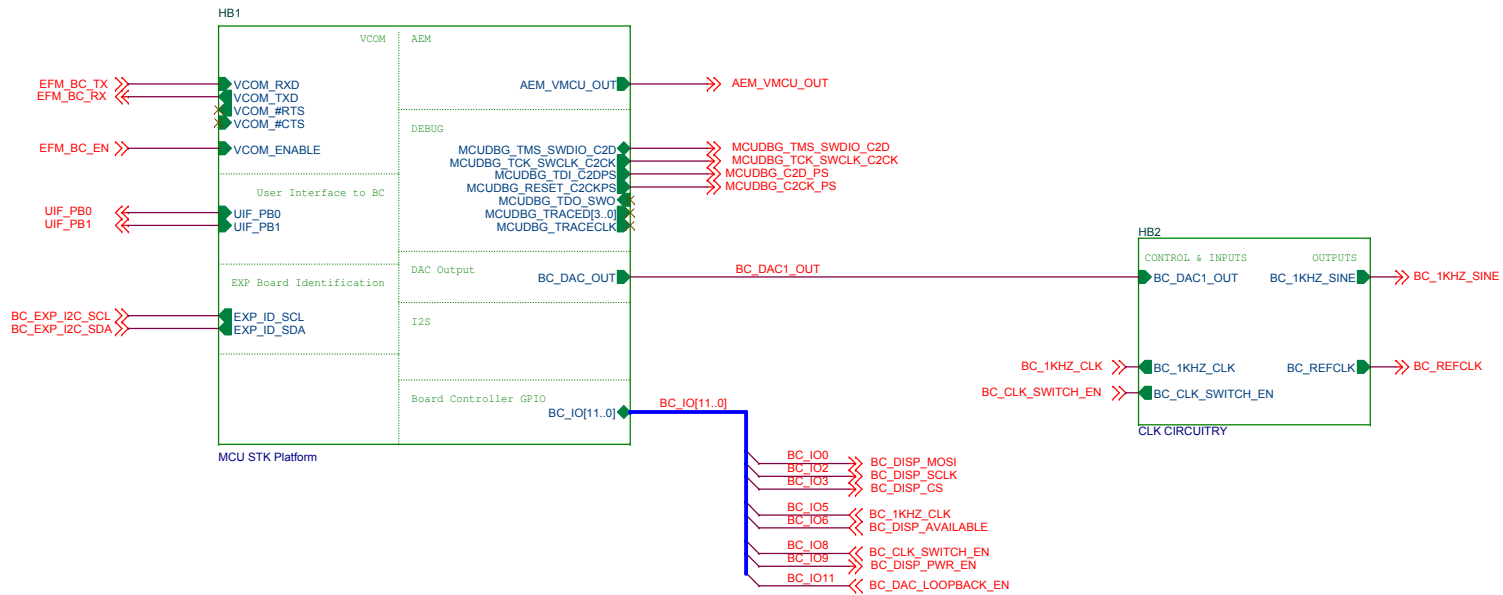
P2 Connections




P3 & DEBUG Connections

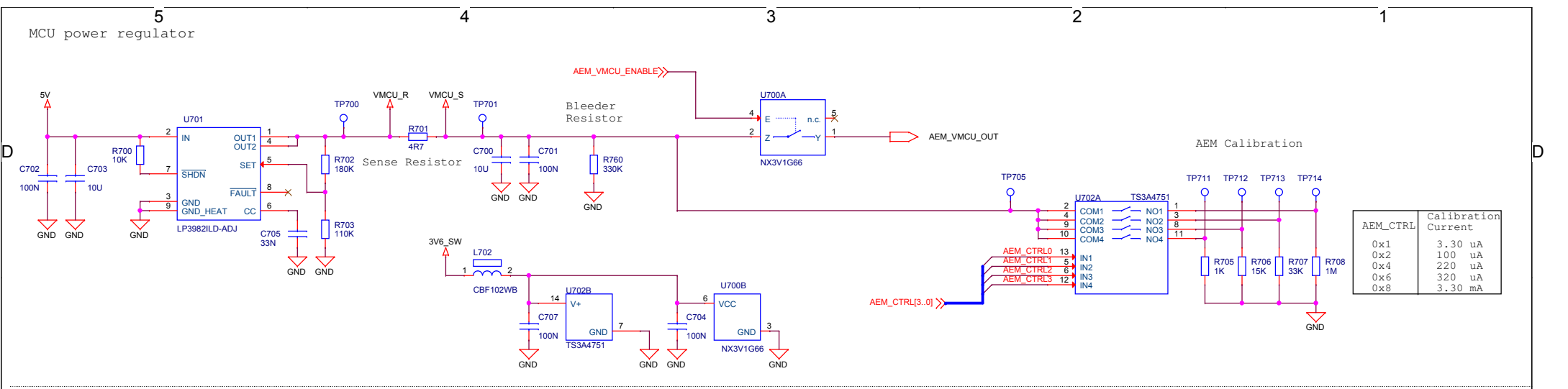


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		EFM8LB1 Laser Bee STK	
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		Signal Assignments	
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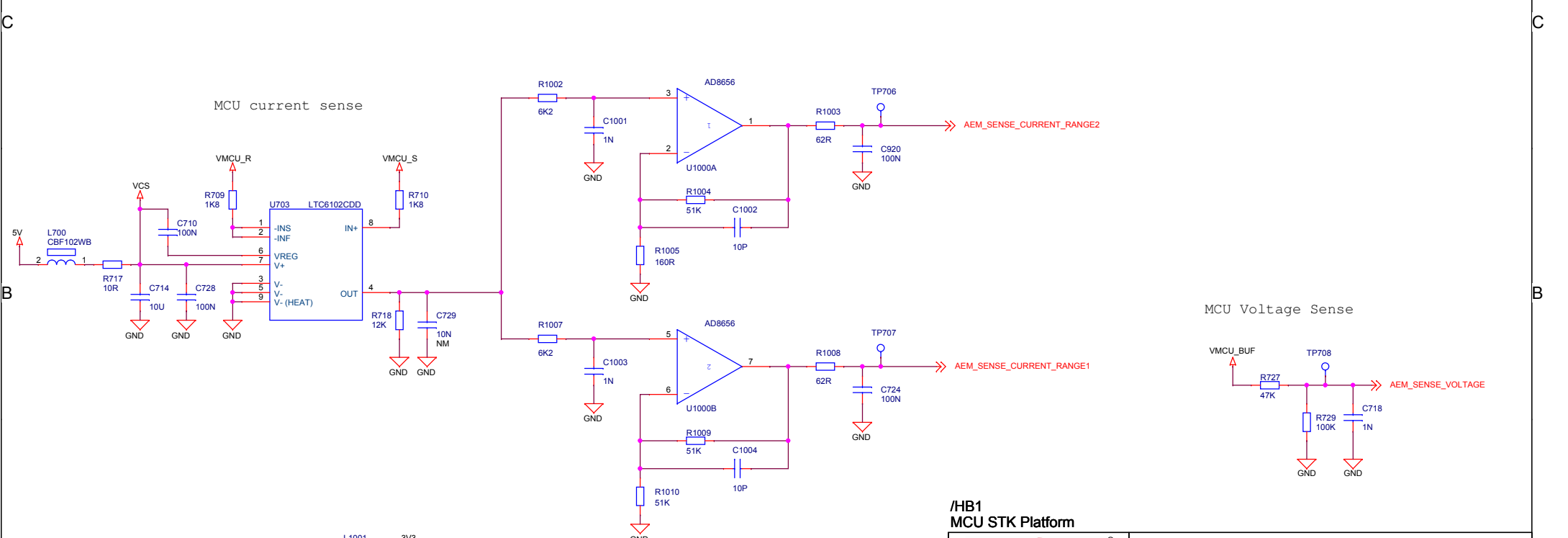


1
STK

 SILICON LABS		Schematic Title	
		EFM8LB1 Laser Bee STK	
Designed: MRW Size: A3		Page Title	
		STK Common Platform	
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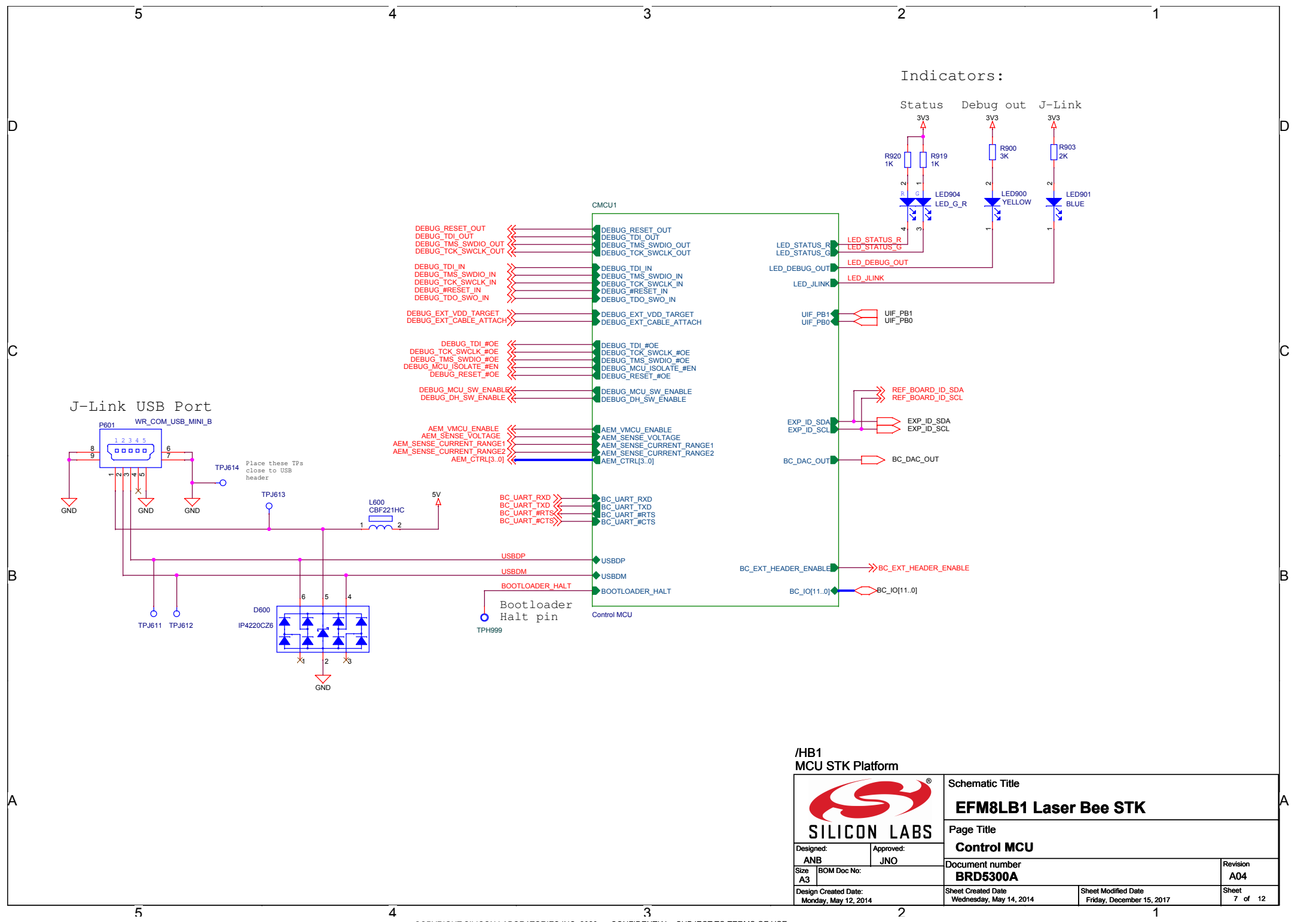
AEM_CTRL	Calibration Current
0x1	3.30 uA
0x2	100 uA
0x4	220 uA
0x6	320 uA
0x8	3.30 mA



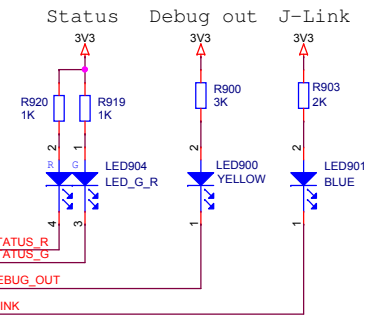
MCU Voltage Sense

/HB1
MCU STK Platform

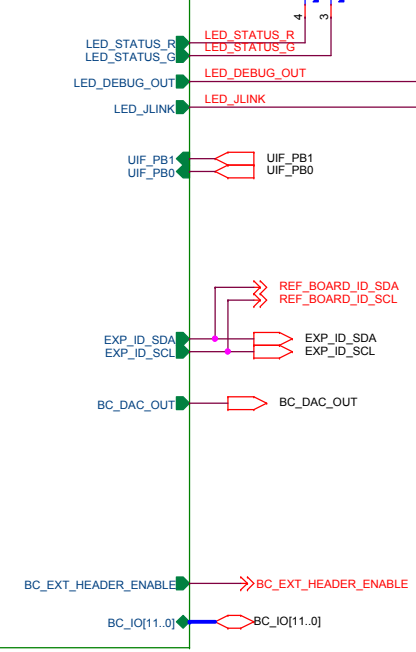
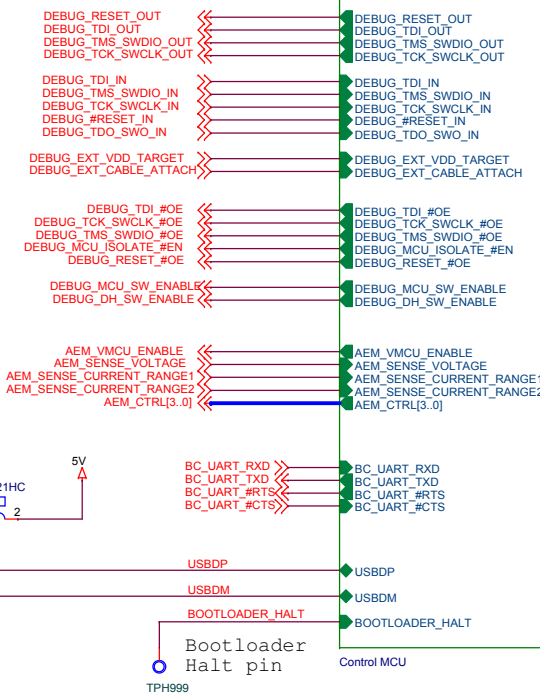
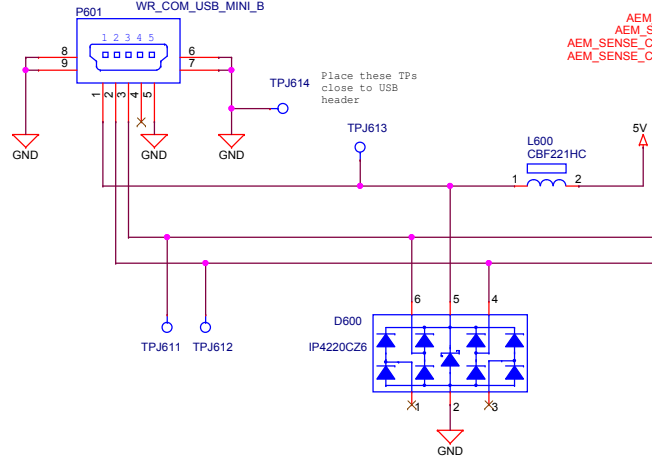
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		Advanced Energy Monitor	
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Indicators:

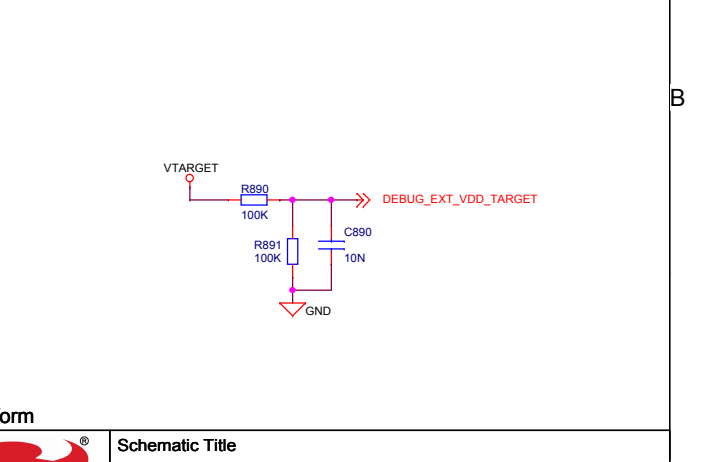
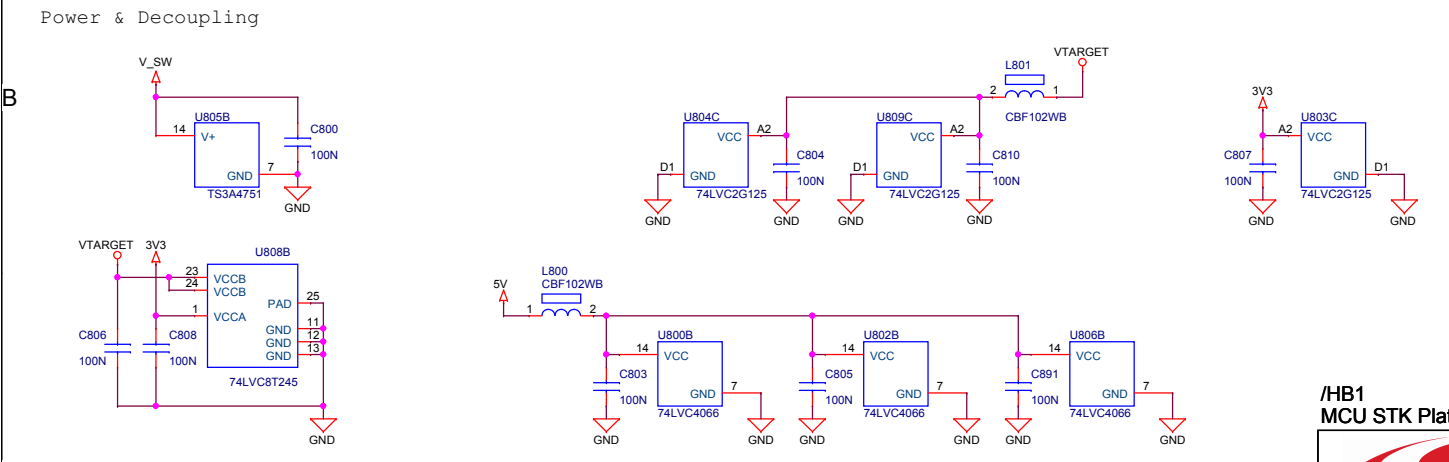
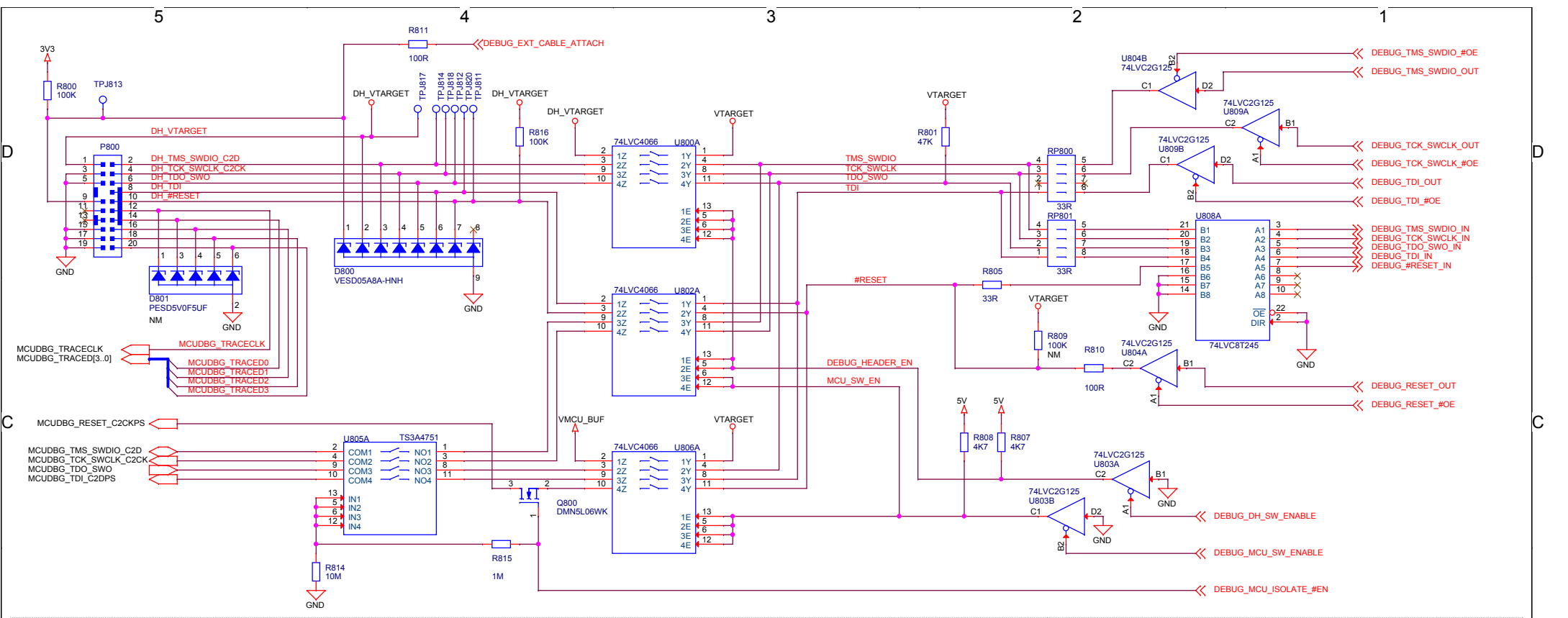


J-Link USB Port



/HB1
MCU STK Platform

 SILICON LABS		Schematic Title	
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Designed: ANB Approved: JNO		Page Title	
		Control MCU	
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Mode	DEBUG_MCU_SW_ENABLE	DEBUG_DH_SW_ENABLE	DEBUG_BUF_#OE	ISOLATE_#EN	DH_VTARGET	VTARGET
Debug Out	0	1	0	0	External voltage	External voltage
MCU Debug	1	0	0	1	Disconnected	VMCU
Debug In	1	1	1	1	VMCU	VMCU
Debug Off	1	1	1	0	-	-

**/HB1
MCU STK Platform**

Schematic Title
EFM8LB1 Laser Bee STK

Page Title
Debug Interface

Designed: DDB Approved: JNO

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Document number: **BRD5300A**

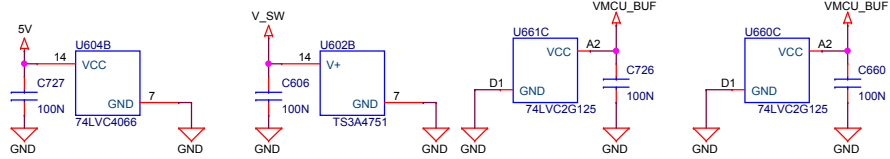
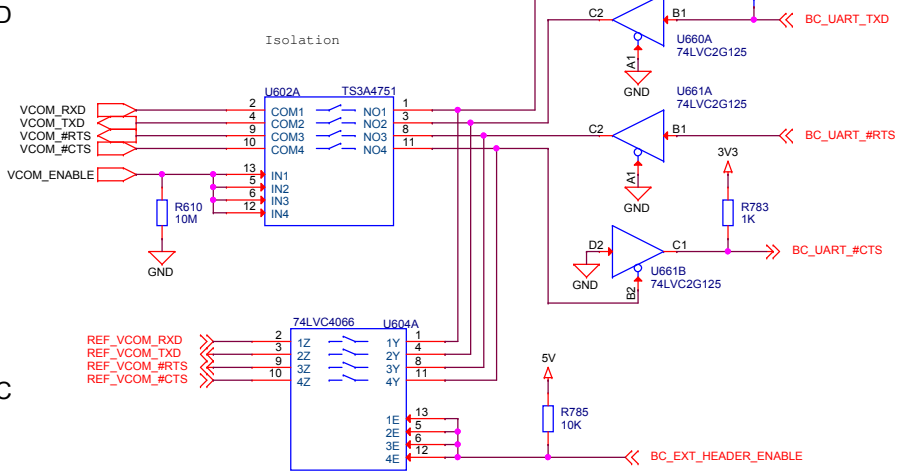
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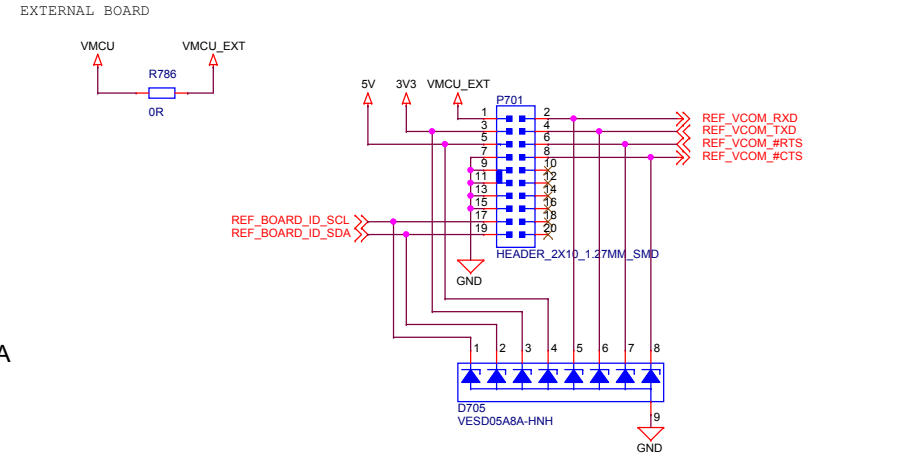
Revision: **A04**

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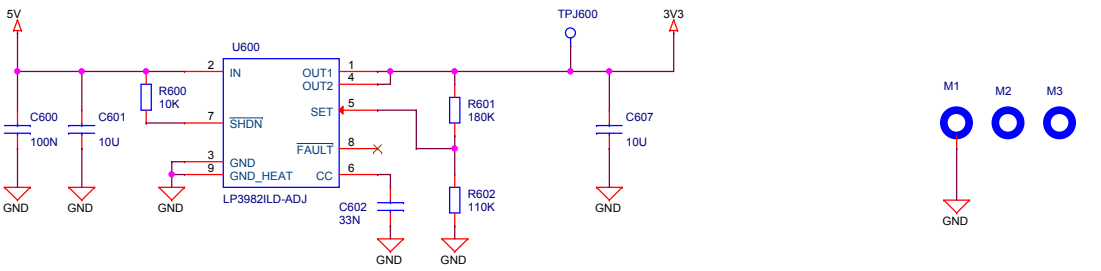
Virtual COM Port Interface



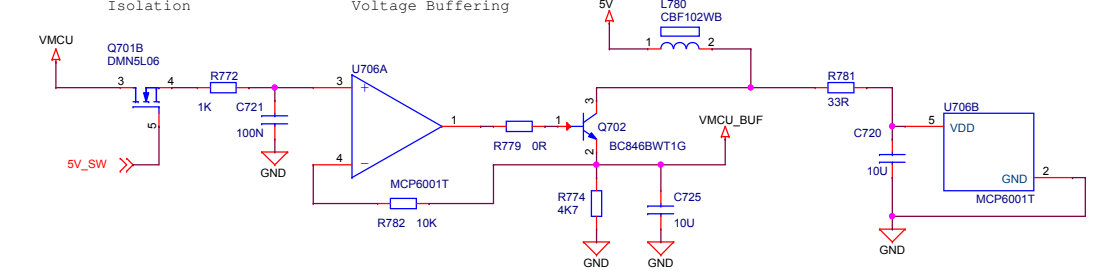
Connector for external reference designs boards



3V3 Regulator



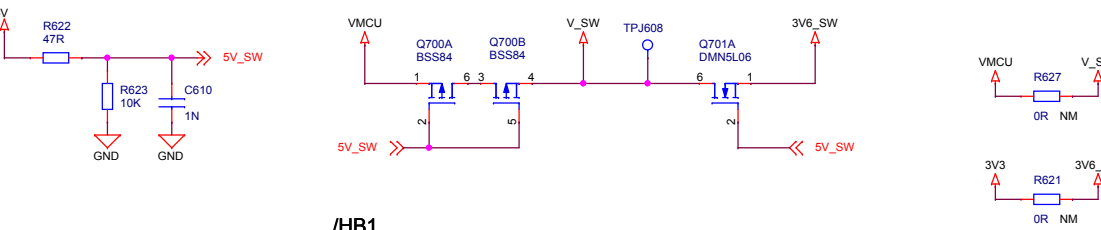
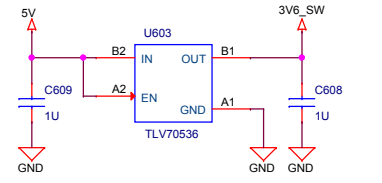
VMCU Voltage Mirror



Power Supply for Analog Switches

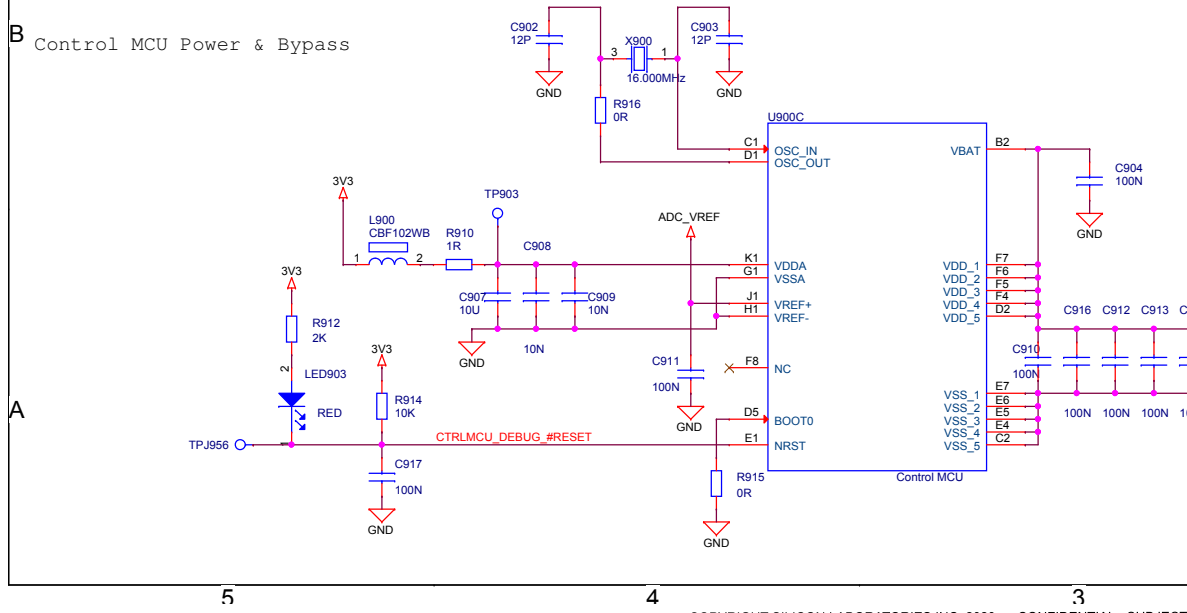
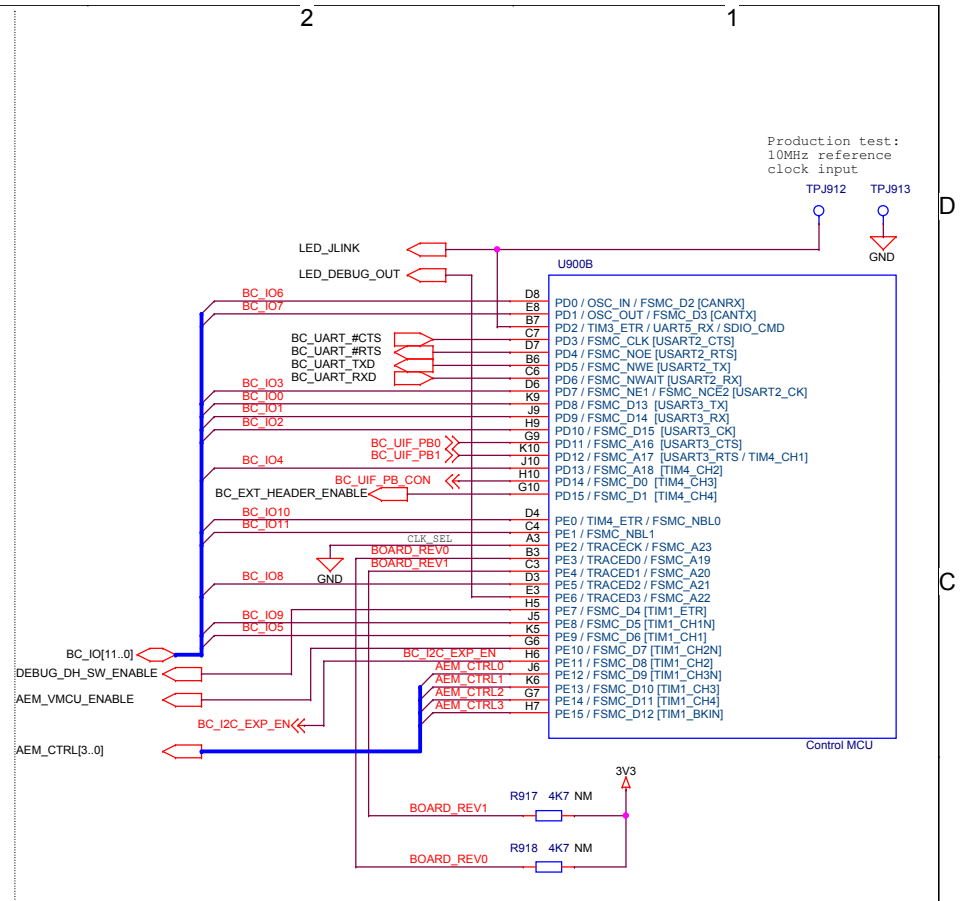
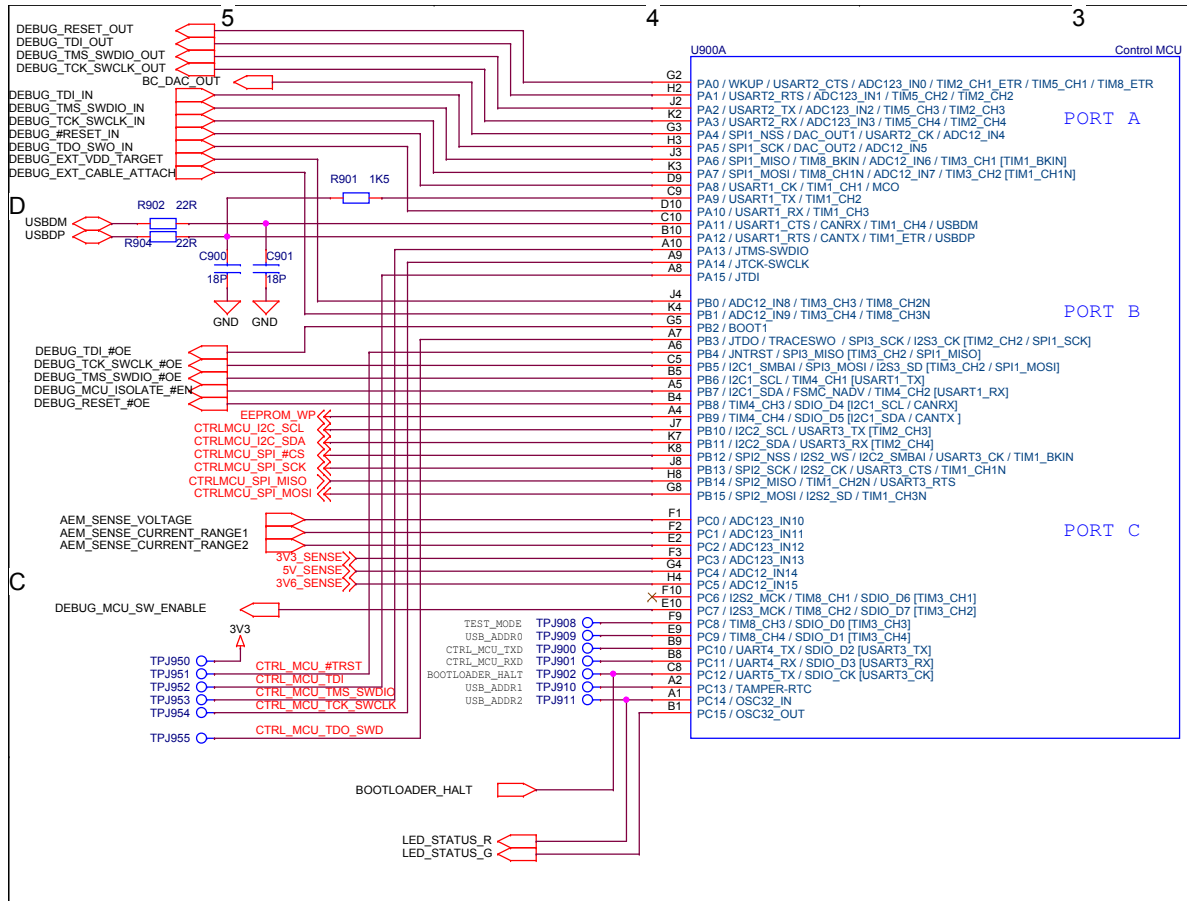
The USB VBUS voltage is used to bias these transistors, turning the P-Channel MOSFETs (Q700) off, and the N-Channel MOSFETs (Q701) on.

J-Link USB Cable	PMOS State	NMOS State	V_SW	VMCU_SENSE
Connected	Off	ON	3.6V	VMCU
Disconnected	ON	OFF	VMCU	Isolated



/HB1 MCU STK Platform

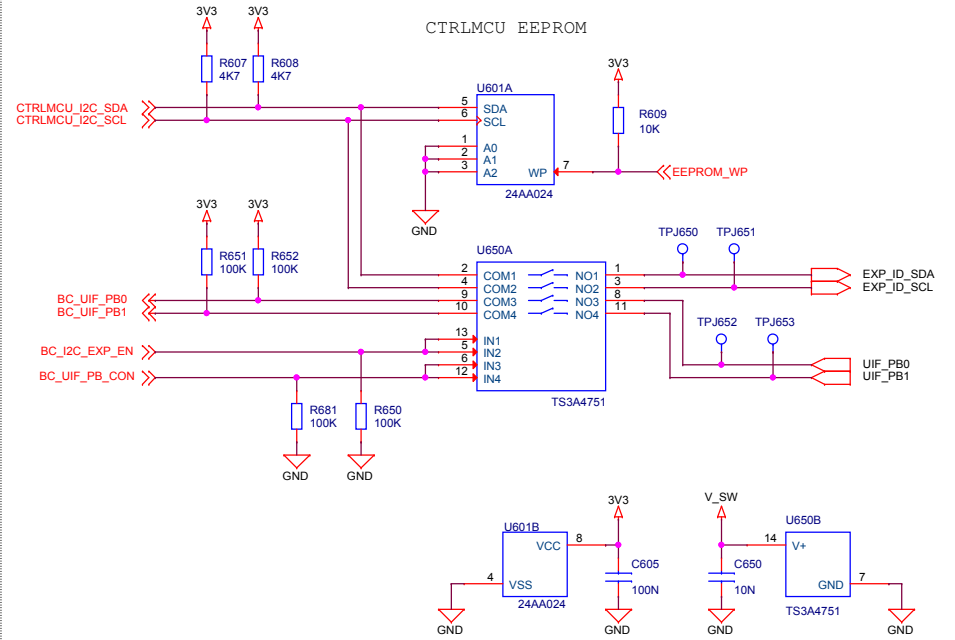
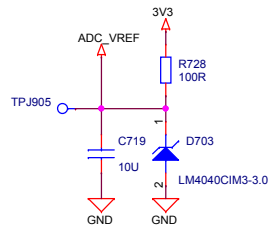
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		Power & Misc.	
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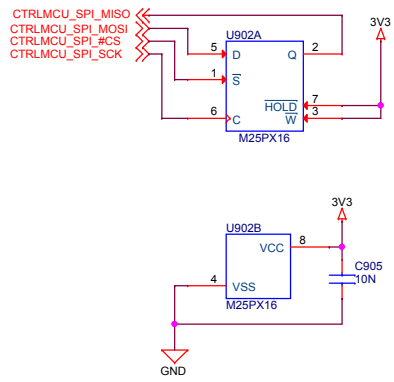
/HB1/CMCU1 Control MCU

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		Control MCU Block	
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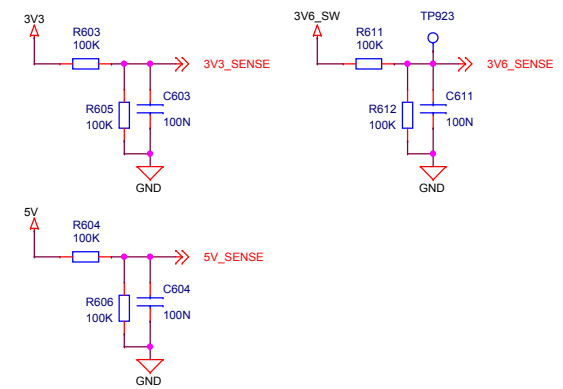
ADC reference voltage




CTRLMCU SERIAL FLASH

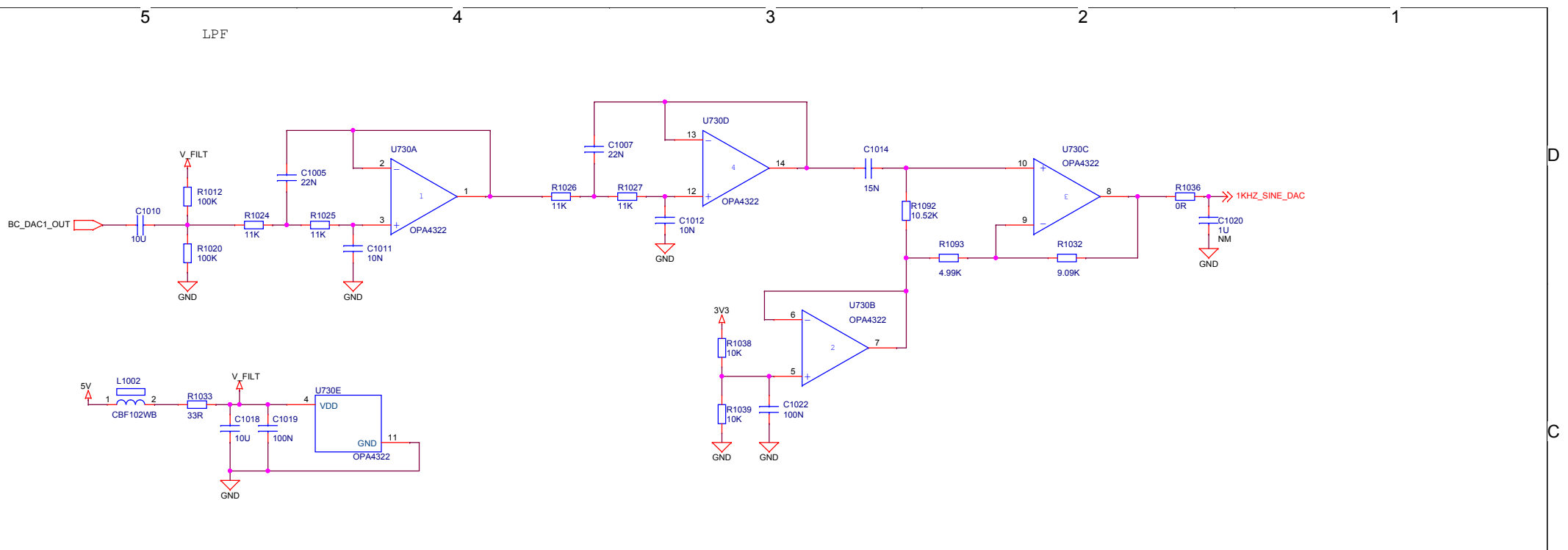


POWER SENSE

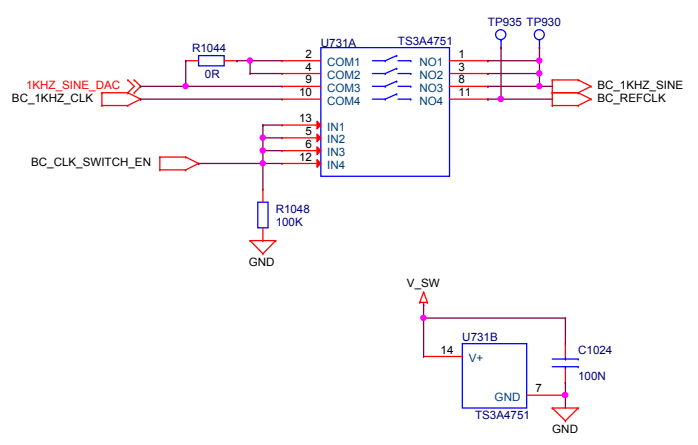


/HB1/CMCU1
Control MCU

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Analog Switch



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		Clock & Filter	
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