

EFM32 Zero Gecko STK

Board Function	Page
Title Page	1
User Interface	2
EFM32 Signal Assignments	3
EFM32 I/O	4
EFM32 Power	5
STK Common Interface	6
STK Common/Power & Misc	7
STK Common/AEM	8
STK Common/Debug Interface	9
STK Common/Board Controller	10
Board Controller/Misc	11
Board Controller/Control MCU	12

Revision History

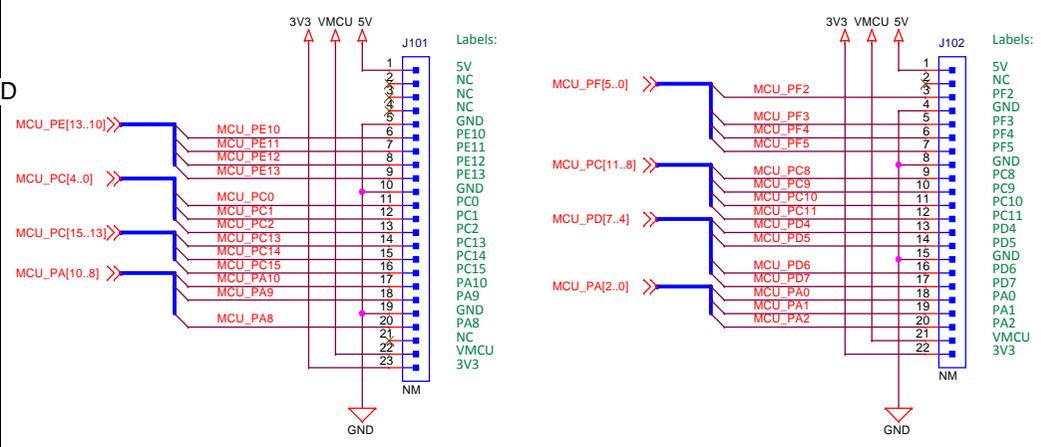
Rev.	Description
PB10	Added 3V6_SENSE. Added TPJ608. Changed TP703 to TPJ703.
PB11	Swapped BC_DISP_COM from BC_IO1 to BC_IO4.
PB12	Swapped EXP Header pins 15 and 17. Moved TPJ606 and TPJ607.
PB13	Extended CTRLMCU_I2C bus to EXP Header. Added EFM_DISP_PWR_EN signal.
B00	Initial release for series production.



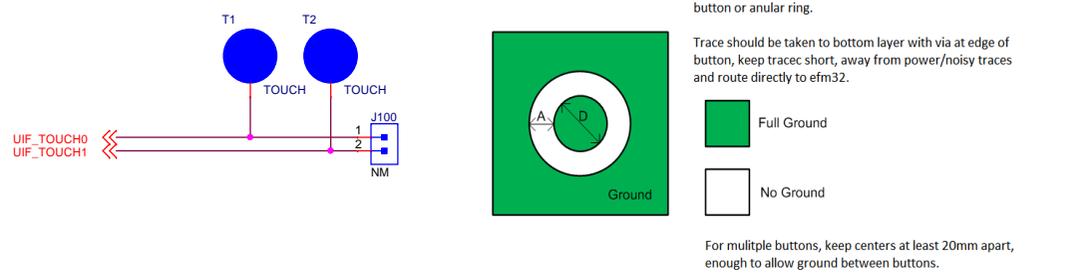
STK

 SILICON LABS		Schematic Title	
		EFM32 Zero Gecko Starter Kit	
Designed: ANB		Approved: JNO	
Page Title		Title Page	
Size A3	BOM Doc No:	Document number	Revision
		BRD2010A	B00
Design Created Date: Wednesday, December 03, 2008		Sheet Created Date Saturday, March 21, 2009	Sheet Modified Date Monday, August 05, 2013
		Sheet	1 of 12

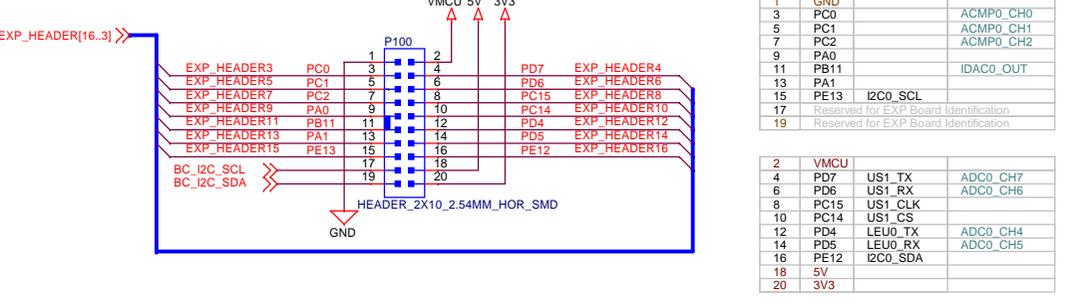
Breakout Connections



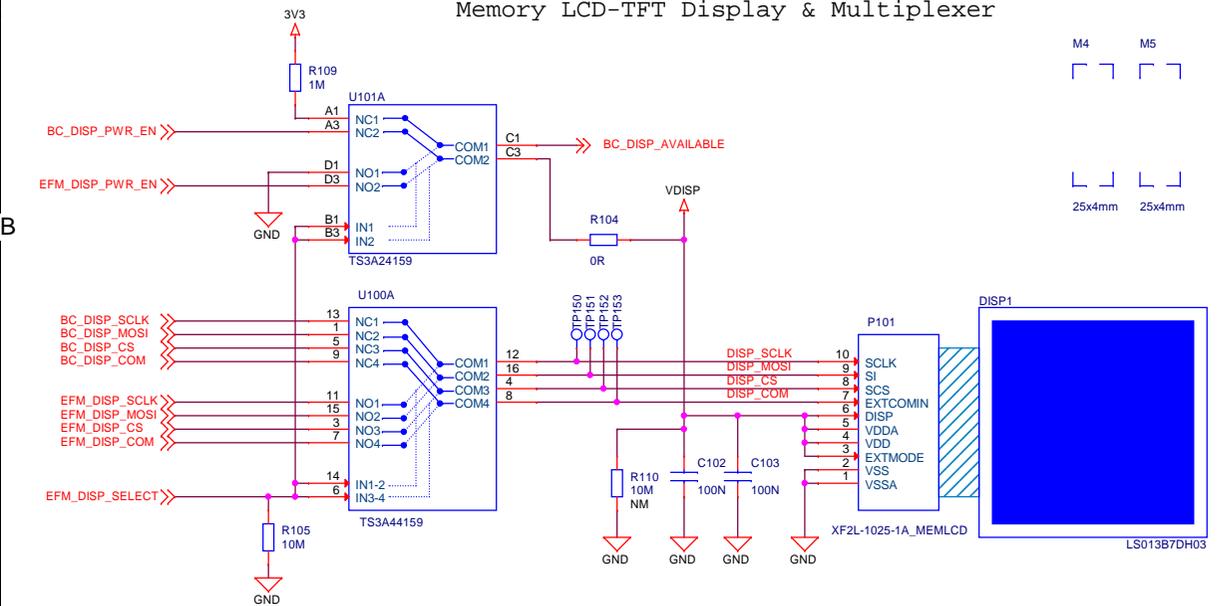
Touch Pads



EXP port



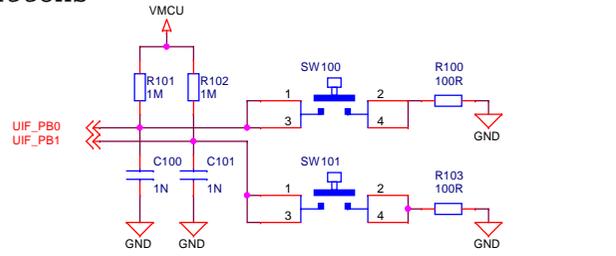
Memory LCD-TFT Display & Multiplexer



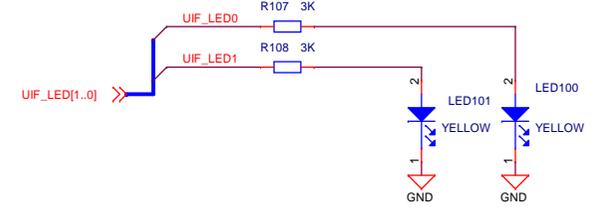
EFM_DISP_SELECT	DISP_CTRL	VDISP	BC_DISP_AVAILABLE
1	EFM	EFM_DISP_PWR_EN	0
0	BC	BC_DISP_PWR_EN	1

The EFM32 always controls ownership of the display using the EFM_DISP_SELECT signal.

User pushbuttons

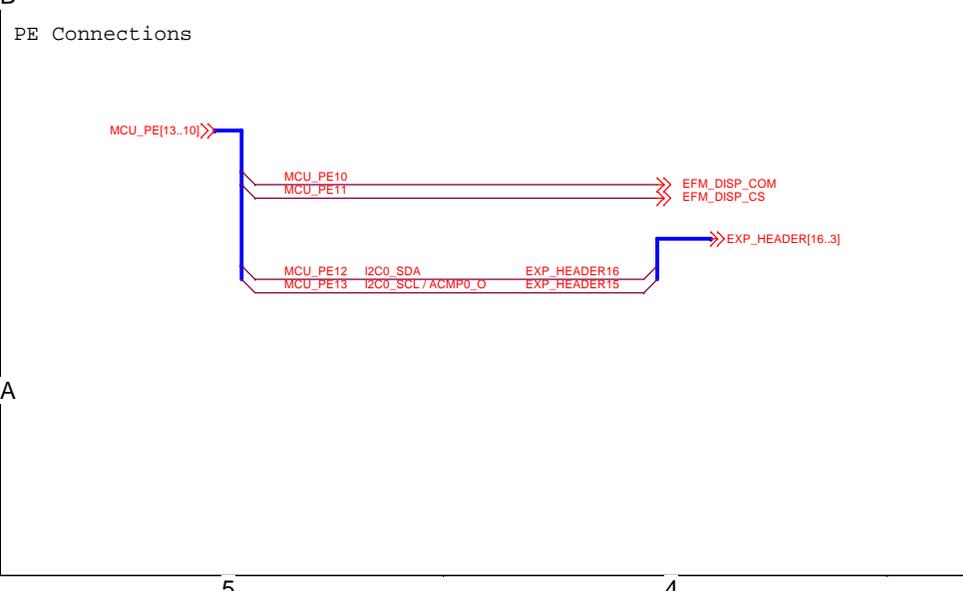
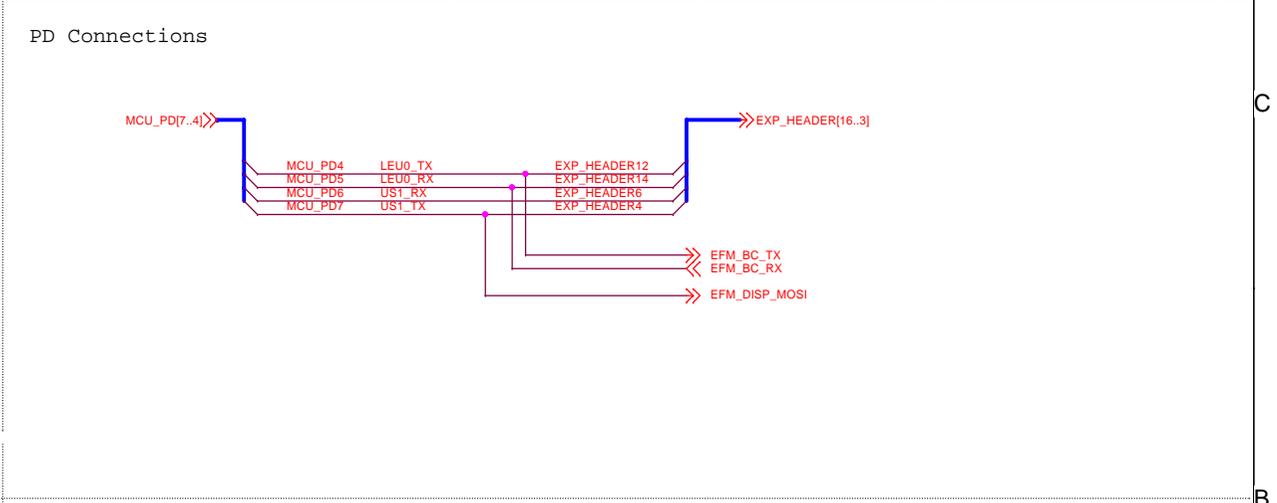
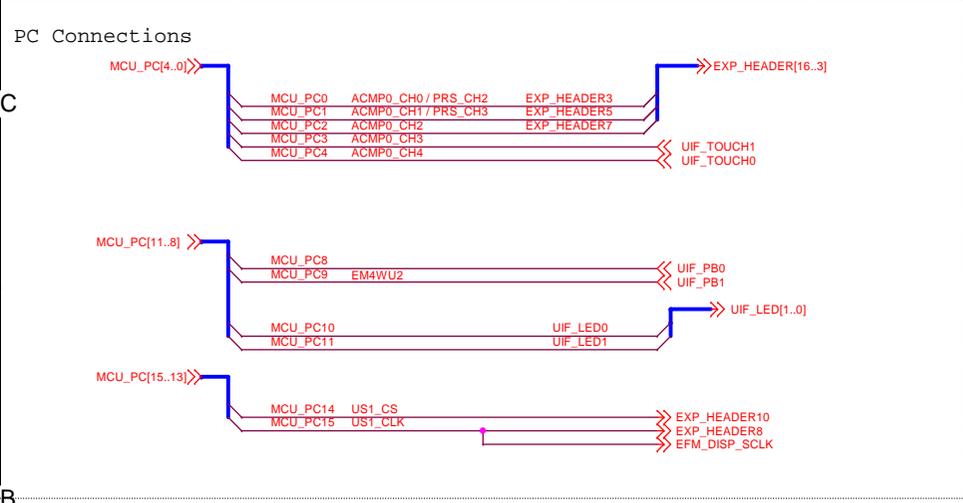
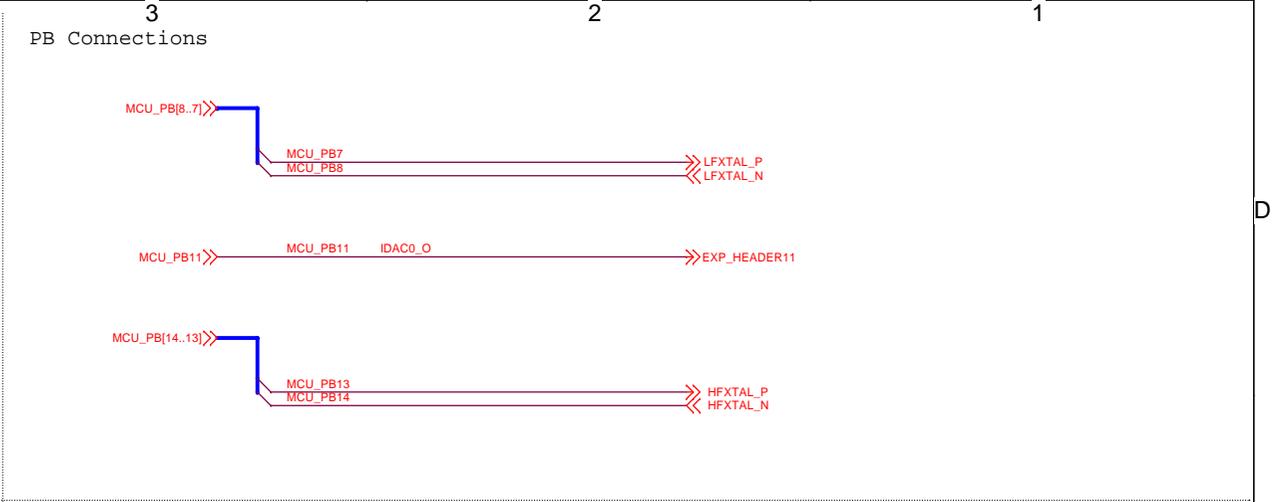
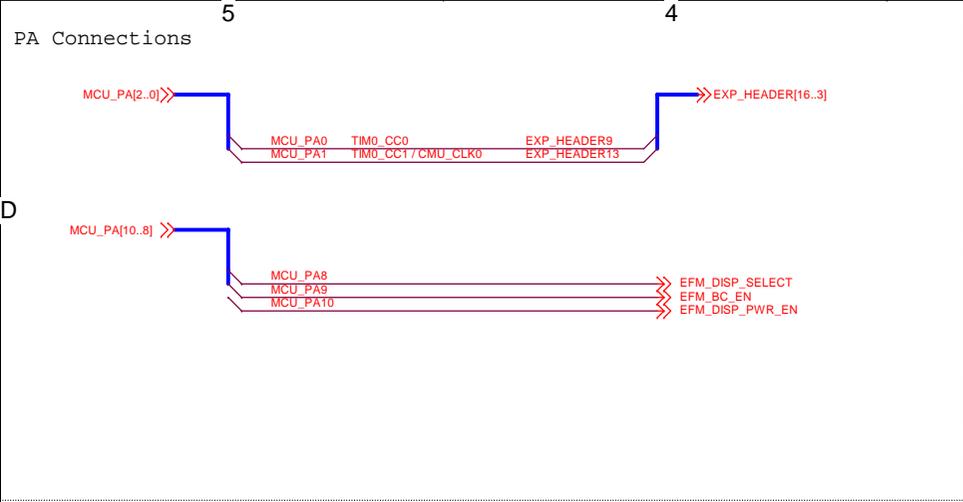


User LEDs



STK

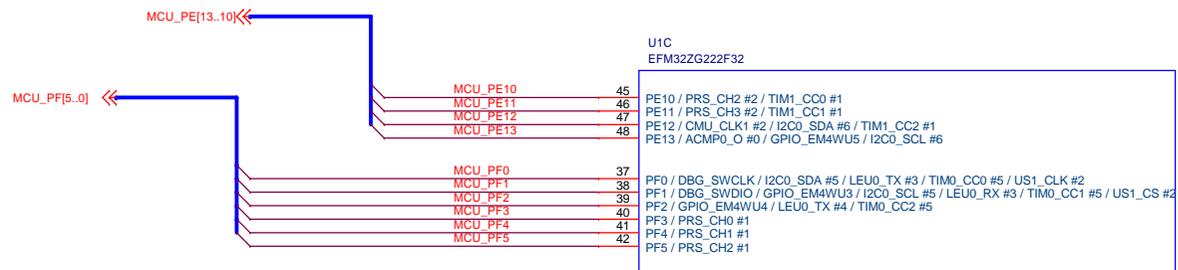
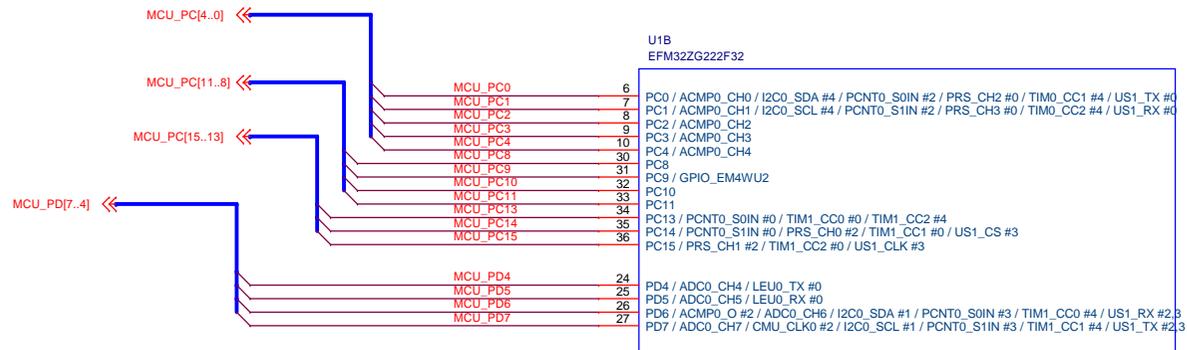
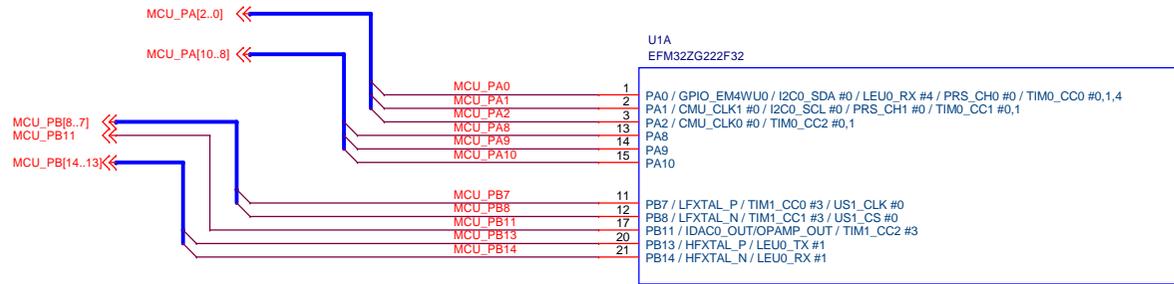
	Schematic Title	
	EFM32 Zero Gecko Starter Kit	
Designed: ANB Approved: JNO	Page Title	
	User Interfaces	
Size A3	Document number	Revision
BOM Doc No:	BRD2010A	B00
Design Created Date:	Sheet Created Date	Sheet Modified Date
Wednesday, December 03, 2008	Saturday, March 21, 2009	Thursday, August 01, 2013
		Sheet 2 of 12



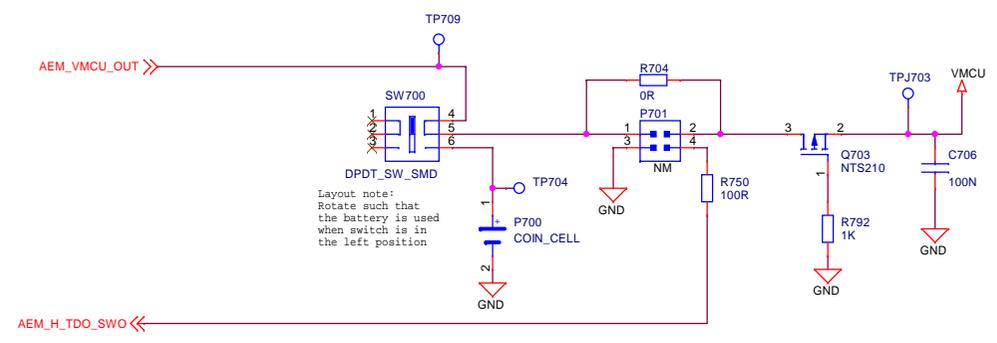
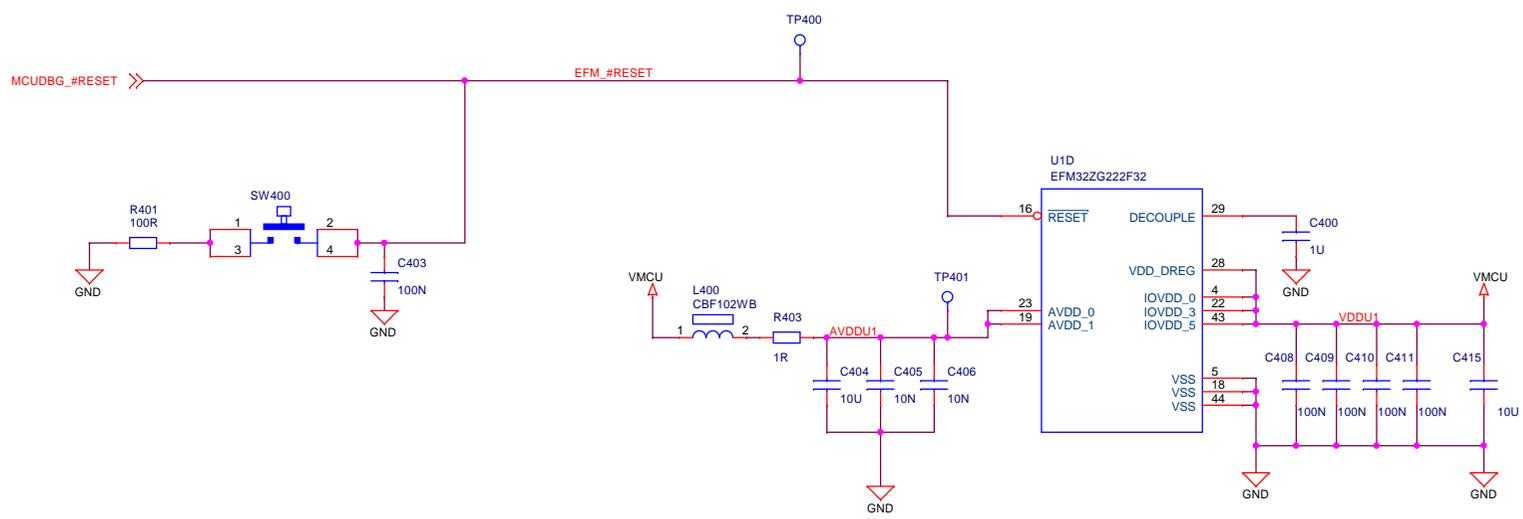
PF Connections

MCU_PF[5..0] connects to MCU_PF0, MCU_PF1, DBG_SWCLK, DBG_SWDIO, MCUBBG_TCK_SWCLK, MCUBBG_TMS_SWCLK.

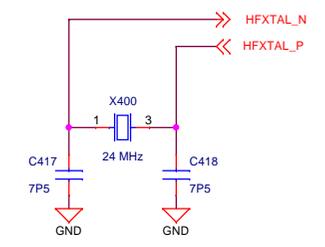
		Schematic Title		
		EFM32 Zero Gecko Starter Kit		
Designed: ANB Approved: JNO		Page Title		
		Signal Assignments		
Size: A3	BOM Doc No: <Cage Code>	Document number		Revision
Design Created Date: Wednesday, December 03, 2008		BRD2010A		B00
Sheet Created Date: Friday, January 15, 2010		Sheet Modified Date: Wednesday, July 31, 2013		Sheet 3 of 12



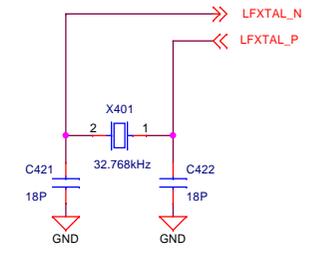
 SILICON LABS		Schematic Title	
		EFM32 Zero Gecko Starter Kit	
Designed: ANB		Approved:	
		JNO	
Size	BOM Doc No:	Document number	
A3	<Cage Code>	BRD2010A	
Design Created Date:		Sheet Created Date	Revision
Wednesday, December 03, 2008		Tuesday, January 12, 2010	B00
		Sheet Modified Date	Sheet
		Monday, July 15, 2013	4 of 12



High Frequency Clock

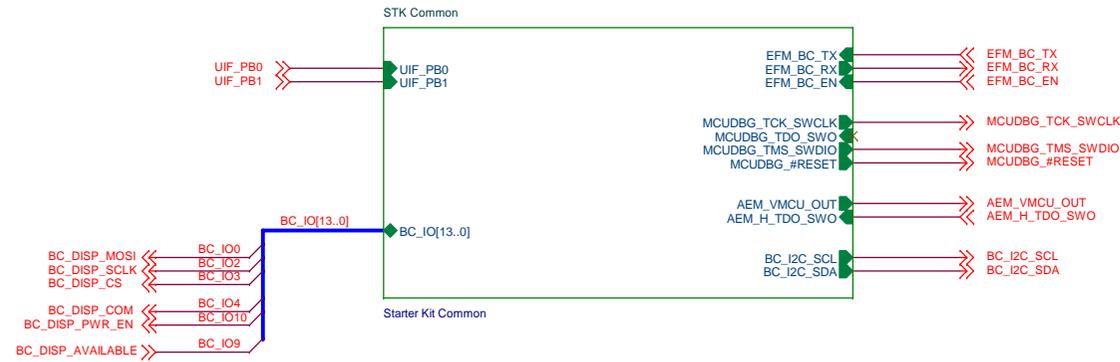


Low Frequency Clock



STK

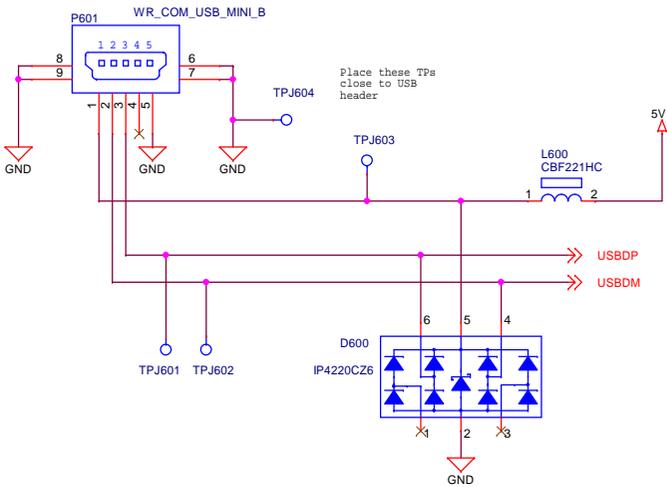
 SILICON LABS		Schematic Title	
		EFM32 Zero Gecko Starter Kit	
Designed: ANB		Approved: JNO	
Page Title		EFM32 Power & USB	
Size A3		Document number	
BOM Doc No: <Cage Code>		BRD2010A	
Design Created Date: Wednesday, December 03, 2008		Sheet Created Date: Thursday, April 11, 2013	
		Sheet Modified Date: Monday, July 15, 2013	
		Revision	
		B00	
		Sheet	
		5 of 12	



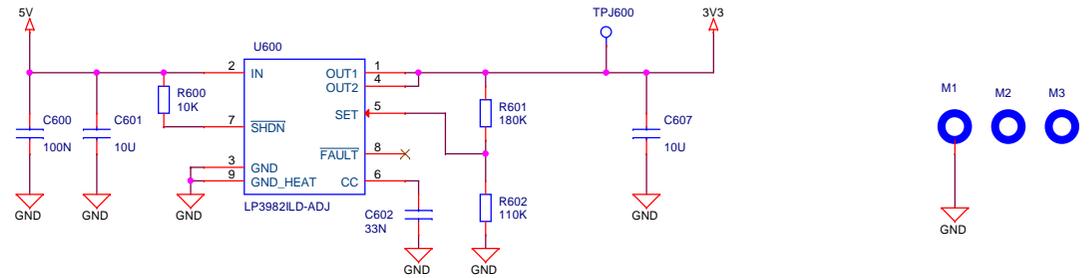
/
STK

		Schematic Title	
		EFM32 Zero Gecko Starter Kit	
Designed: ANB		Page Title	
		STK Common Interface	
Approved: JNO		Document number	
Size A3		BRD2010A	
BOM Doc No: <Cage Code>		Revision	
Design Created Date: Wednesday, December 03, 2008		B00	
Sheet Created Date: Wednesday, June 19, 2013		Sheet Modified Date	
Thursday, August 01, 2013		Sheet	
6 of 12			

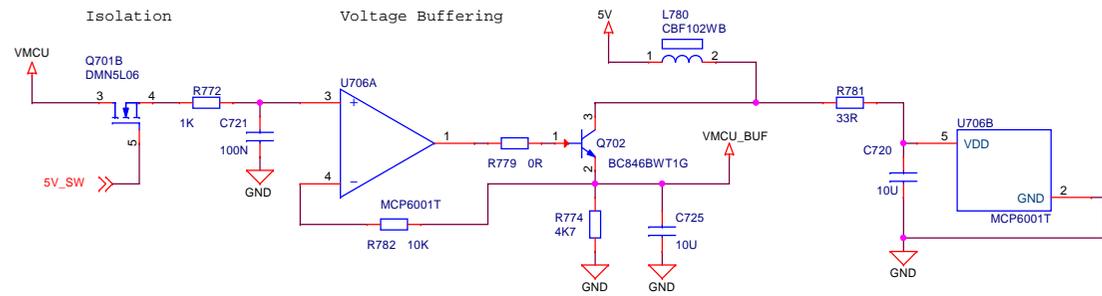
Power input



3V3 Regulator

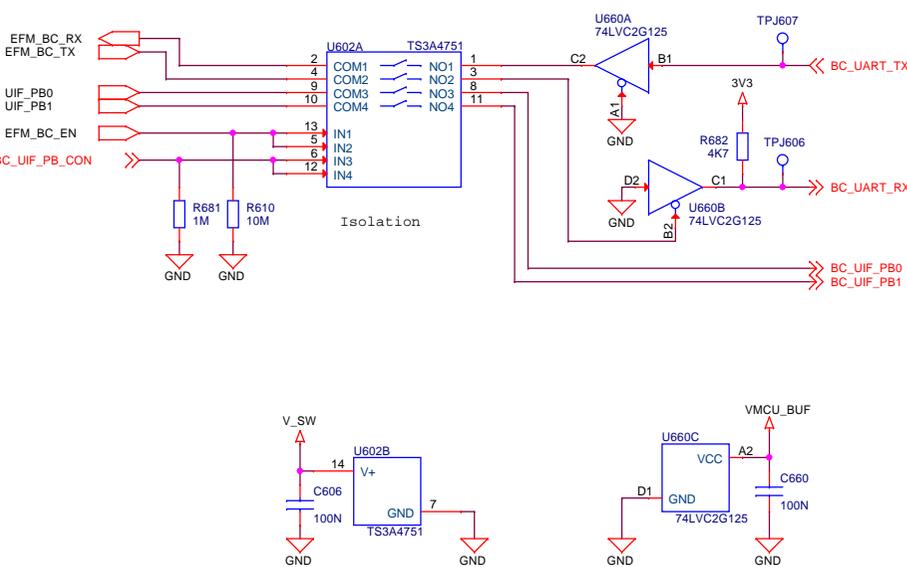


VMCU_DBG power



Board Controller Communication

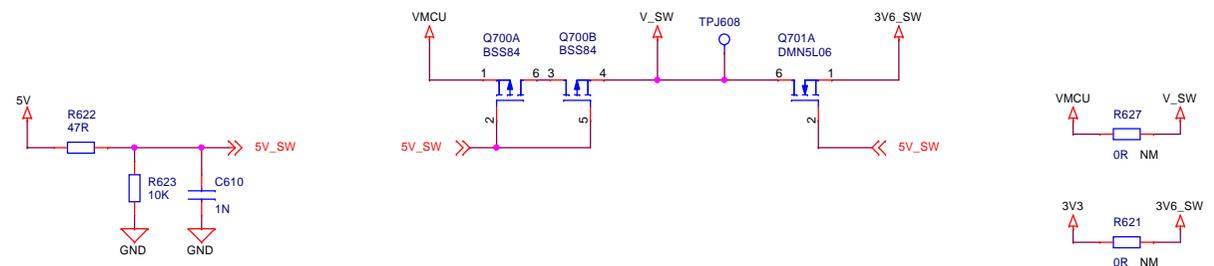
User input to board controller



Power Supply for Analog Switches

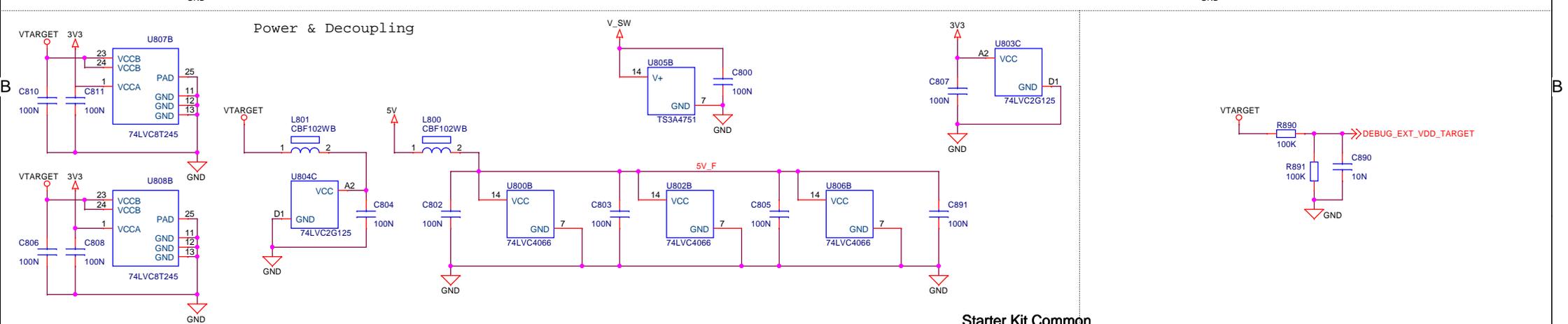
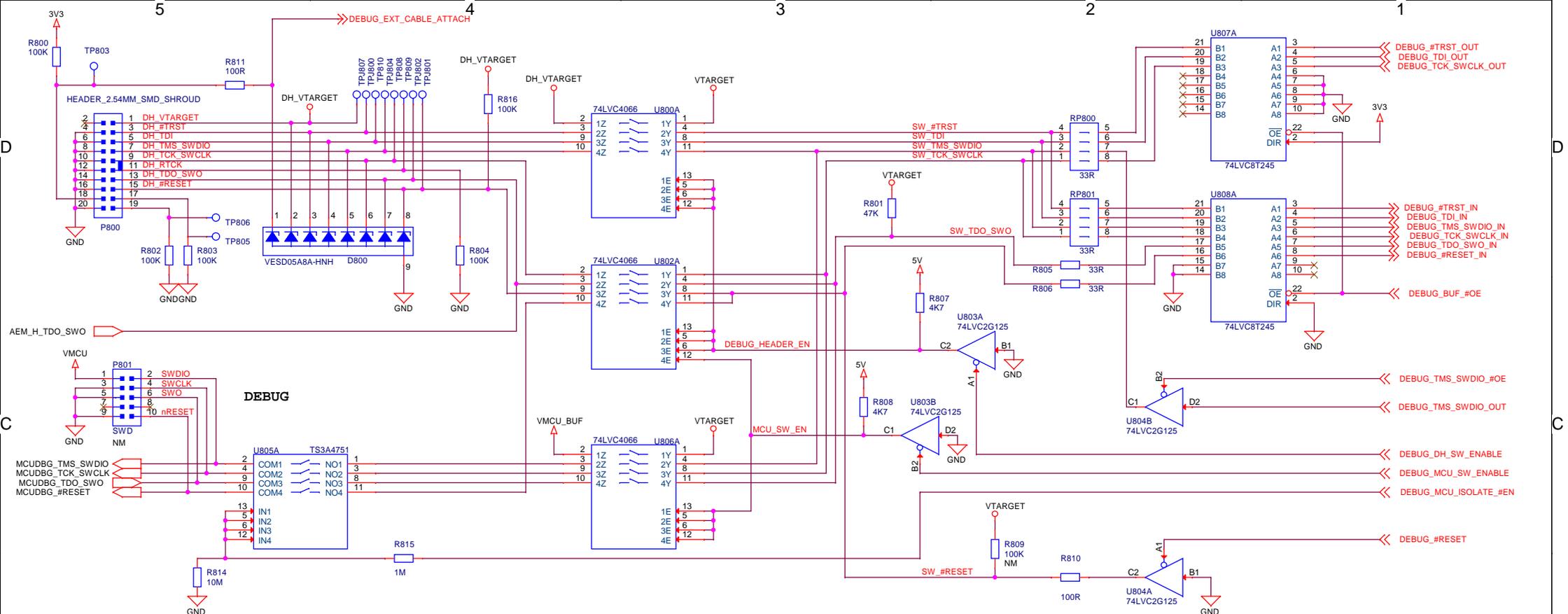
The USB VBUS voltage is used to bias these transistors, turning the P-Channel MOSFETs (Q700) off, and the N-Channel MOSFETs (Q701) on.

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



Starter Kit Common

		Schematic Title	
		EFM32 Zero Gecko Starter Kit	
Designed: DDB Size A3 Design Created Date: Wednesday, June 12, 2013		Page Title	
		Power & Misc	
Approved: JNO BOM Doc No: <Cage Code>		Document number	
		BRD2010A	
Sheet Created Date: Tuesday, June 18, 2013		Revision	
Sheet Modified Date: Monday, July 29, 2013		B00	
		Sheet 7 of 12	



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	-	-



SILICON LABS

Designed: DDB | Approved: JNO

Size A3 | BOM Doc No: <Cage Code>

Design Created Date: Wednesday, June 12, 2013

Schematic Title

EFM32 Zero Gecko Starter Kit

Page Title

Debug Interface

Document Number

BRD2010A

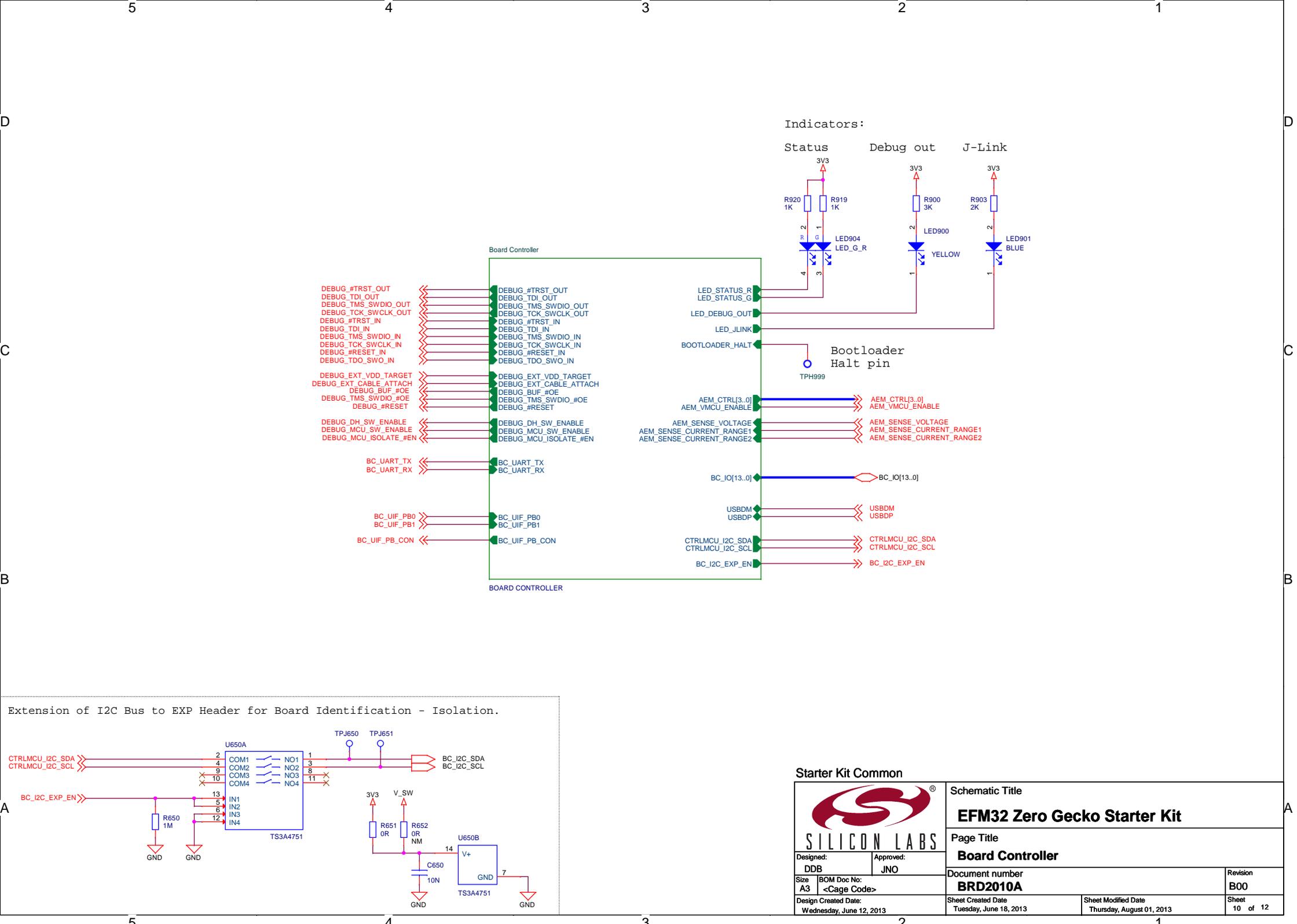
Sheet Created Date: Tuesday, June 18, 2013

Sheet Modified Date: Wednesday, July 10, 2013

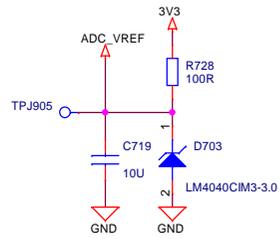
Starter Kit Common

Revision **B00**

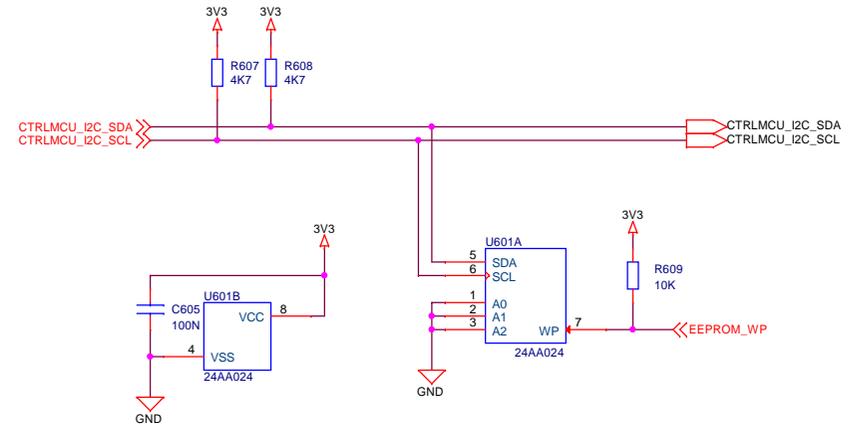
Sheet **9** of **12**



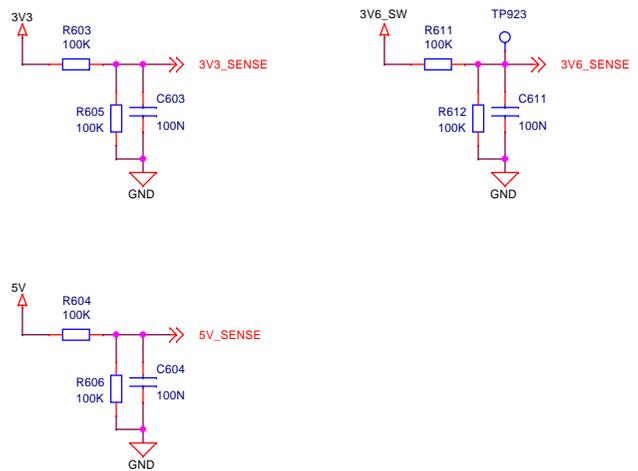
ADC reference voltage



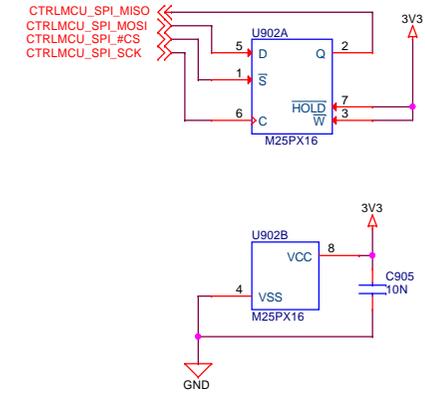
CTRLMCU EEPROM



POWER SENSE

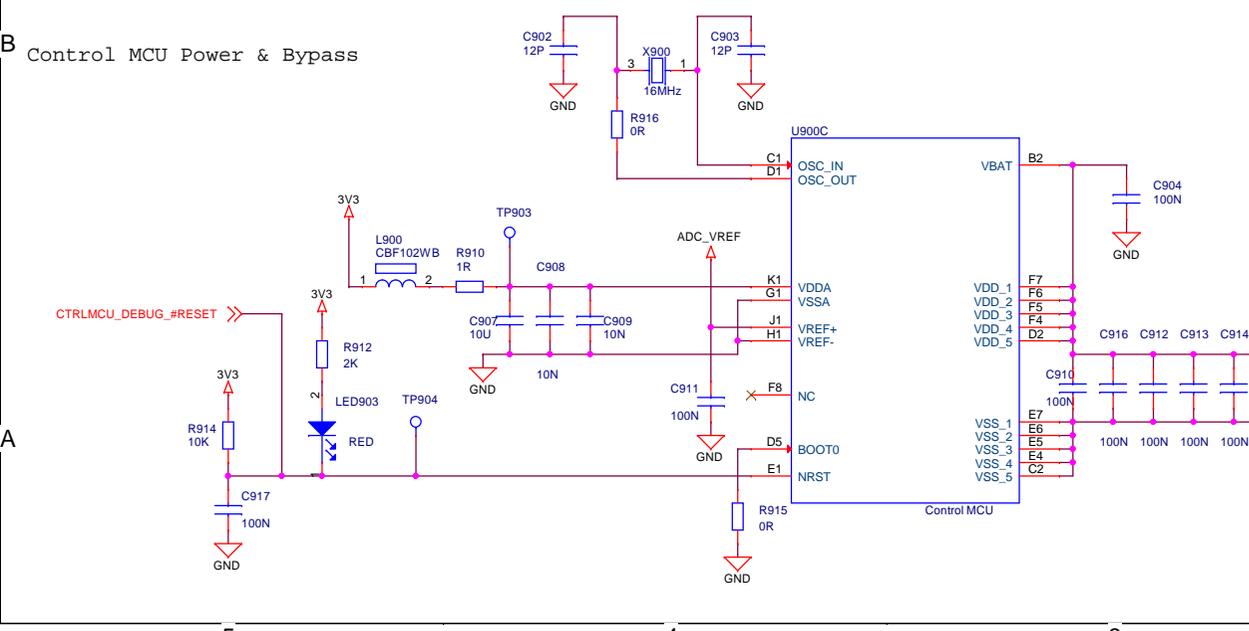
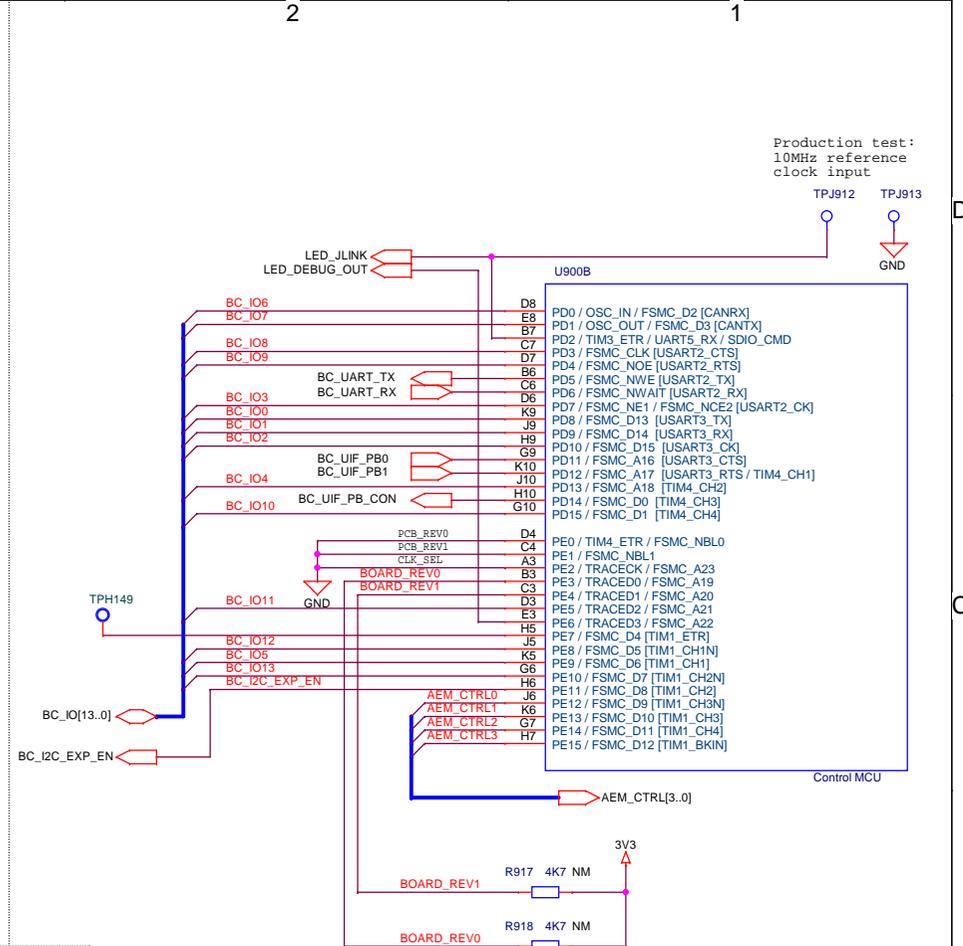
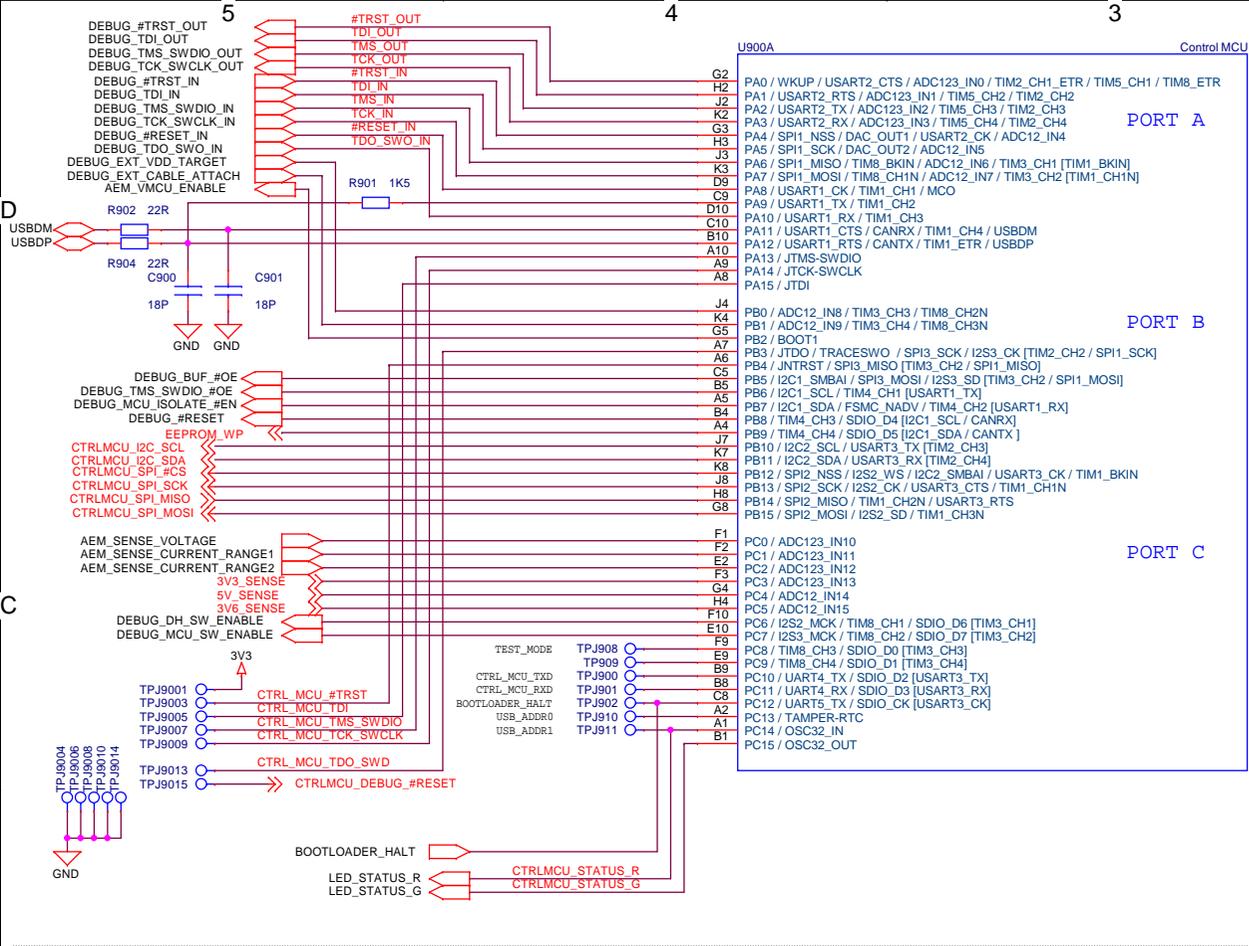


CTRLMCU SERIAL FLASH



/STK Common/Board Controller
BOARD CONTROLLER

		Schematic Title	
		EFM32 Zero Gecko Starter Kit	
Designed: DDB Approved: JNO		Page Title	
		Board Controller Misc	
Size A3	BOM Doc No: <Cage Code>	Document number	Revision
		BRD2010A	B00
Design Created Date:	Sheet Created Date:	Sheet Modified Date:	Sheet
Wednesday, June 12, 2013	Wednesday, June 12, 2013	Monday, July 29, 2013	11 of 12



/STK Common/Board Controller BOARD CONTROLLER

		Schematic Title	
		EFM32 Zero Gecko Starter Kit	
Designed: DDB Approved: JNO		Page Title	
		Control MCU	
Size A3	BOM Doc No: <Cage Code>	Document number	Revision
Design Created Date: Wednesday, June 12, 2013	Sheet Created Date: Wednesday, June 12, 2013	Sheet Modified Date: Monday, July 29, 2013	Sheet 12 of 12