EFM32PG12 Pearl Gecko STK

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Revision History

Rev.	Description
A00	Initial release
A01	Changed to rev B of EFM32

PCB1

PCB2501A

/
EFM32PG STK

SILICON LABS

Designed: HEL	Approved: JNO
Size A3	BOM Doc No: <Cage Code>
Design Created Date: Wednesday, December 03, 2008	

Schematic Title
EFM32PG12 Pearl Gecko Starter Kit

Page Title
Title Page

Document number BRD2501A		Revision A01
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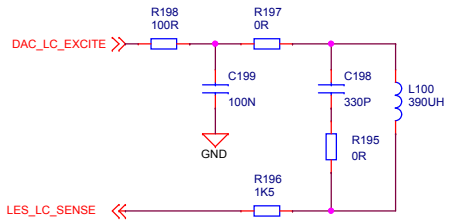
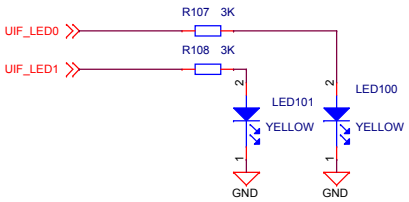
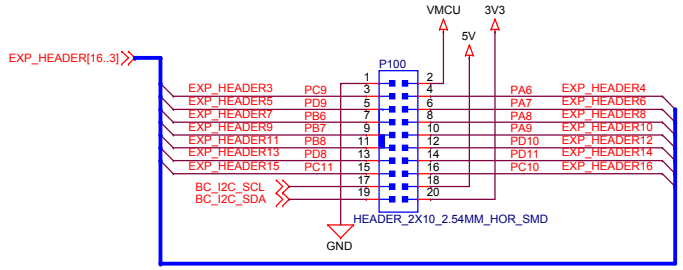
LESENSE LC-Sensor



User LEDs



EXP Header

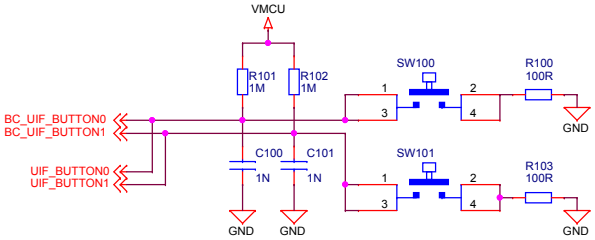


EXP-Header Functionality

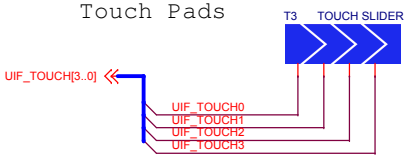
1	GND		
3	PC9		..
5	PD9		
7	PB6	US3_TX #10	I2C1_SDA#6
9	PB7	US3_RX #10	I2C1_SCL#6
11	PB8	US3_CLK #10	
13	PD8	US3_CS #29	
15	PC11	I2C0_SCL#15	
17	Reserved for EXP Board Identification		
19	Reserved for EXP Board Identification		

2	VMCU		
4	PA6	US2_TX #1	
6	PA7	US2_RX #1	
8	PA8	US2_CLK #1	
10	PA9	US2_CS #1	
12	PD10	LEU0_TX #18	
14	PD11	LEU0_RX #18	
16	PC10	I2C0_SDA#15	
18	5V		
20	3V3		

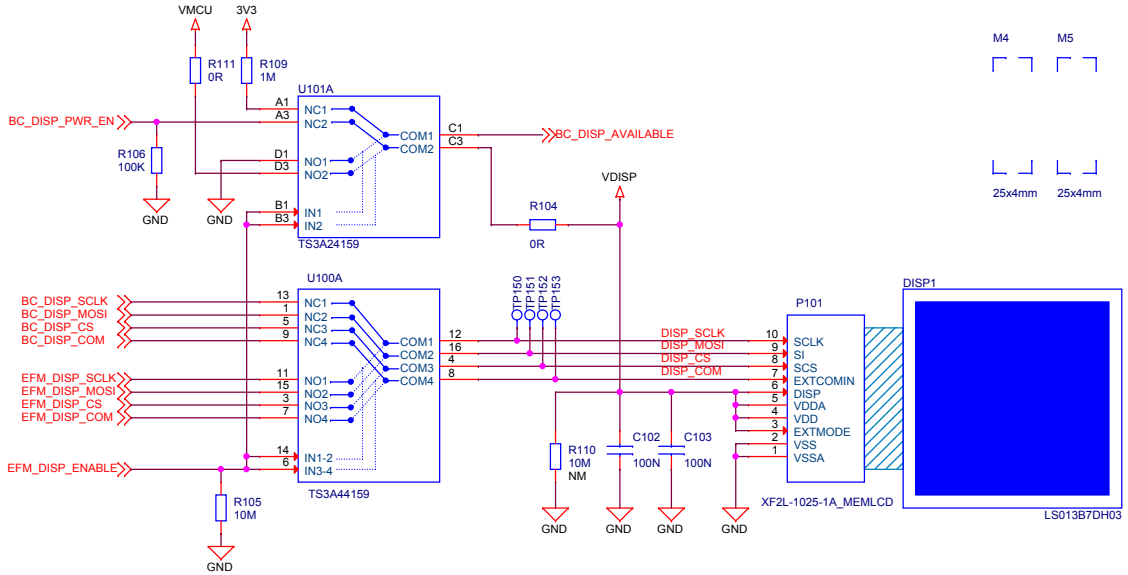
User Pushbuttons



Touch Pads

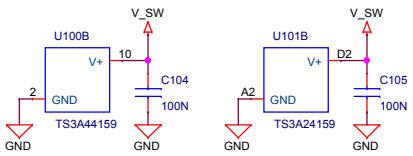


Memory LCD-TFT Display & Multiplexer

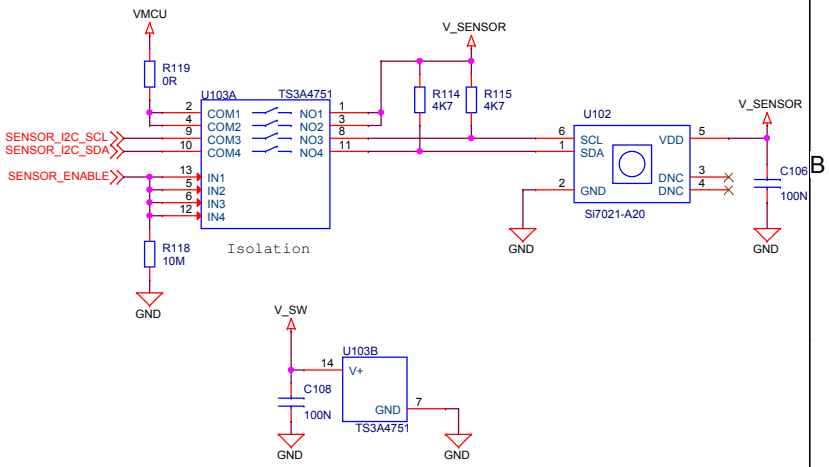


EFM_DISP_ENABLE	DISP_CTRL	VDISP	BC_DISP_AVAILABLE
1	EFM	VMCU	0
0	BC	BC_DISP_PWR_EN	1

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



Relative Humidity & Temperature Sensor



EFM32PG STK

SILICON LABS

Designed: HEL	Approved: JNO
Size A3	BOM Doc No:
Design Created Date: Wednesday, December 03, 2008	

Schematic Title: **EFM32PG12 Pearl Gecko Starter Kit**

Page Title: **User Interfaces**

Document number	Revision
BRD2501A	A01

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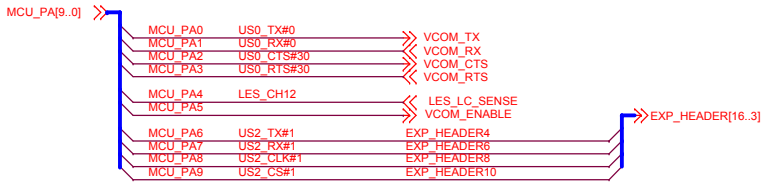
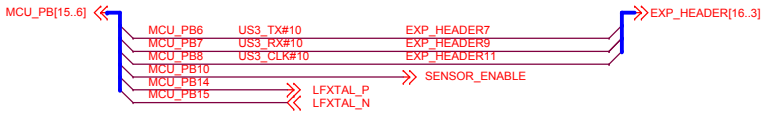
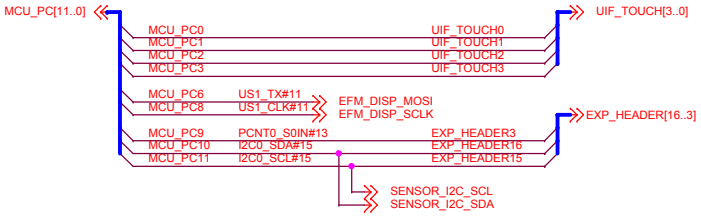
PA Connections



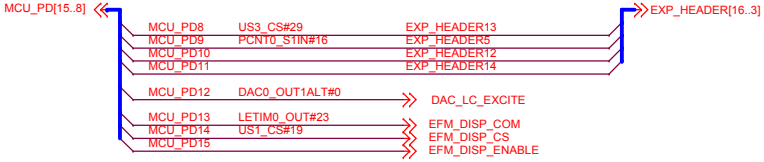
PB Connections



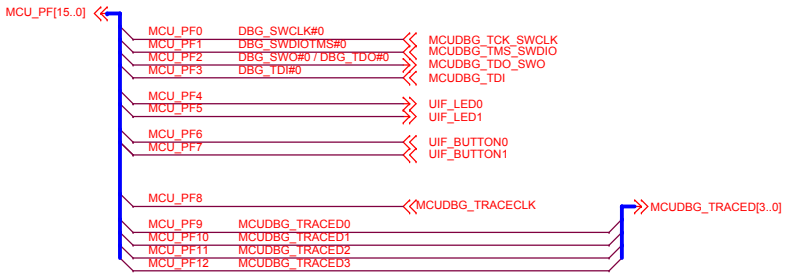
PC Connections



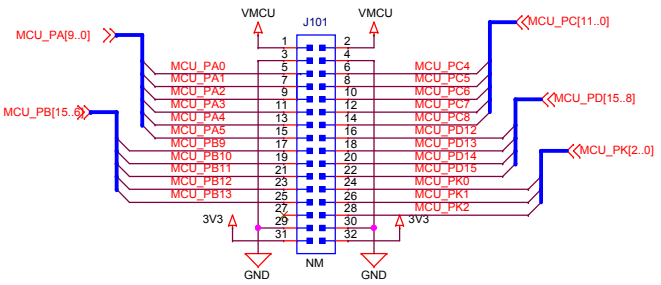
PD Connections



PF Connections

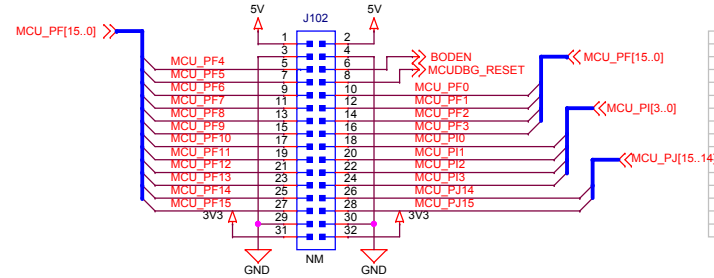


Breakout Connections



Breakout header labels:

VMCU	VMCU
GND	GND
PA0	PC4
PA1	PC5
PA2	PC6
PA3	PC7
PA4	PC8
PA5	PD12
PB9	PD13
PB10	PD14
PB11	PD15
PB12	PK0
PB13	PK1
NC	PK2
GND	GND
3V3	3V3



5V	5V
GND	GND
PF4	BDEN
PF5	RST
PF6	PF0
PF7	PF1
PF8	PF2
PF9	PF3
PF10	PI0
PF11	PI1
PF12	PI2
PF13	PI3
PF14	PJ14
PF15	PJ15
GND	GND
3V3	3V3

SILICON LABS

Designed: HEL	Approved: JNO
Size: A3	BOM Doc No: <Cage Code>
Design Created Date: Wednesday, December 03, 2008	

Schematic Title: **EFM32PG12 Pearl Gecko Starter Kit**

Page Title: **EFM32 Signal Assignments**

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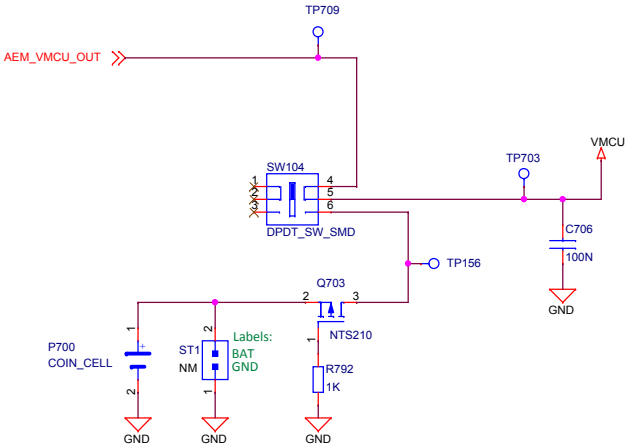
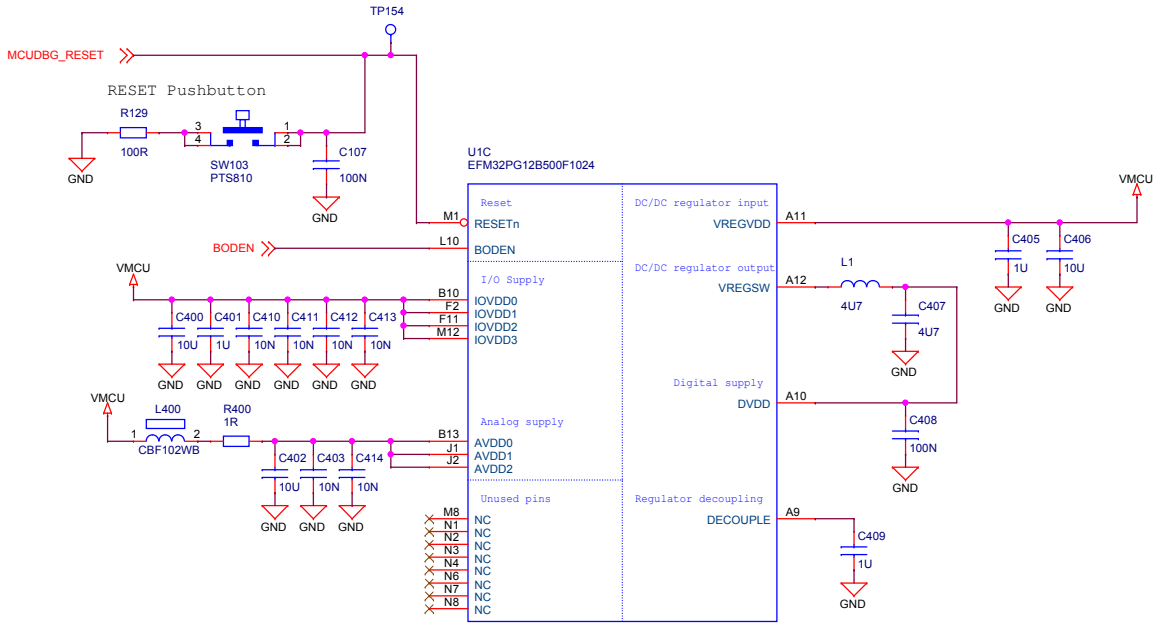
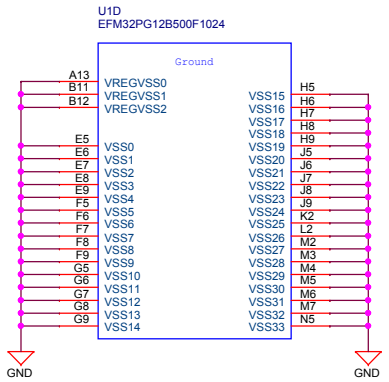
Power Select Switch: AEM/BAT



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

EFM32 Power and Decoupling





SILICON LABS

Schematic Title	EFM32PG12 Pearl Gecko Starter Kit
Page Title	EFM32 Power
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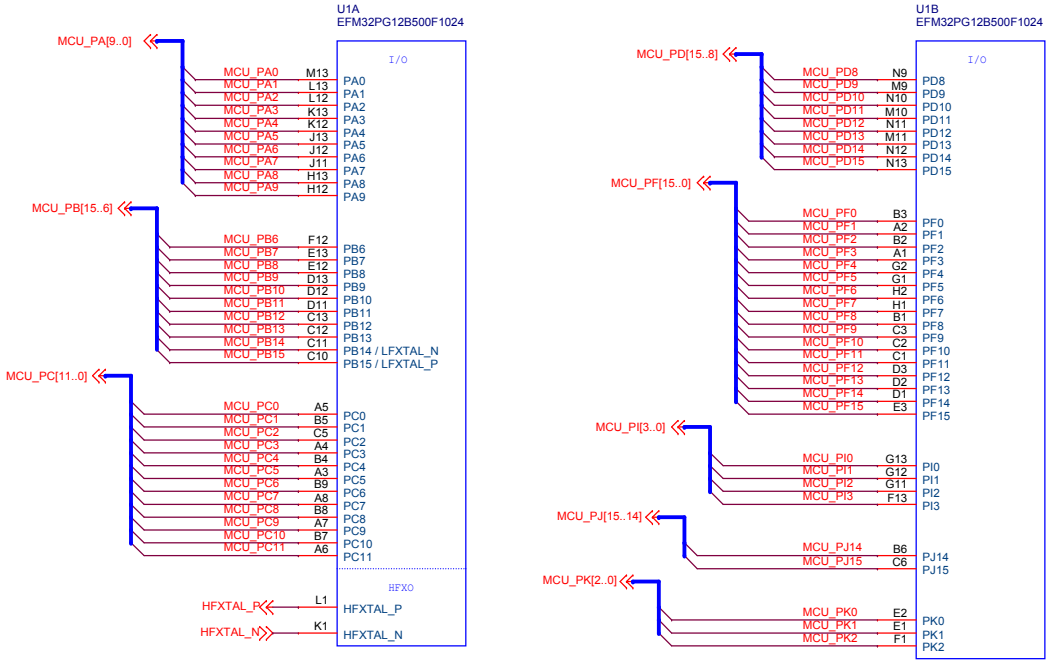
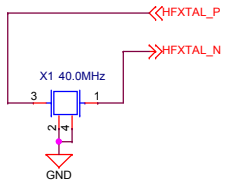
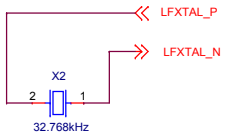


High Frequency Clock



Low Frequency Clock



SILICON LABS

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Size: A3	BOM Doc No: <Cage Code>
Design Created Date: Wednesday, December 03, 2008	

Schematic Title: **EFM32PG12 Pearl Gecko Starter Kit**

Page Title: **EFM32 I/O**

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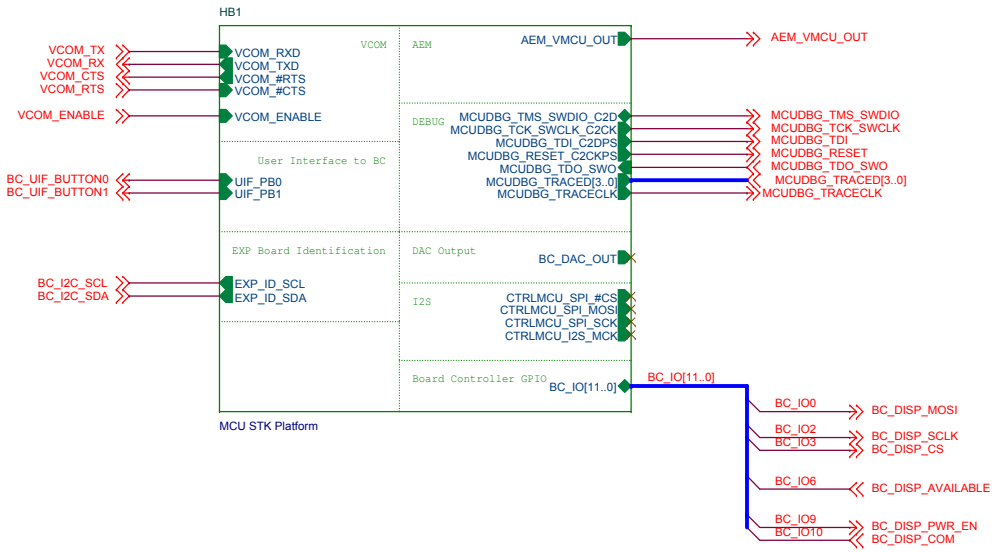
Board Controller Functional Block



SILICON LABS

Schematic Title	EFM32PG12 Pearl Gecko Starter Kit
Page Title	STK Board Controller
Designed: HEL	Approved: JNO
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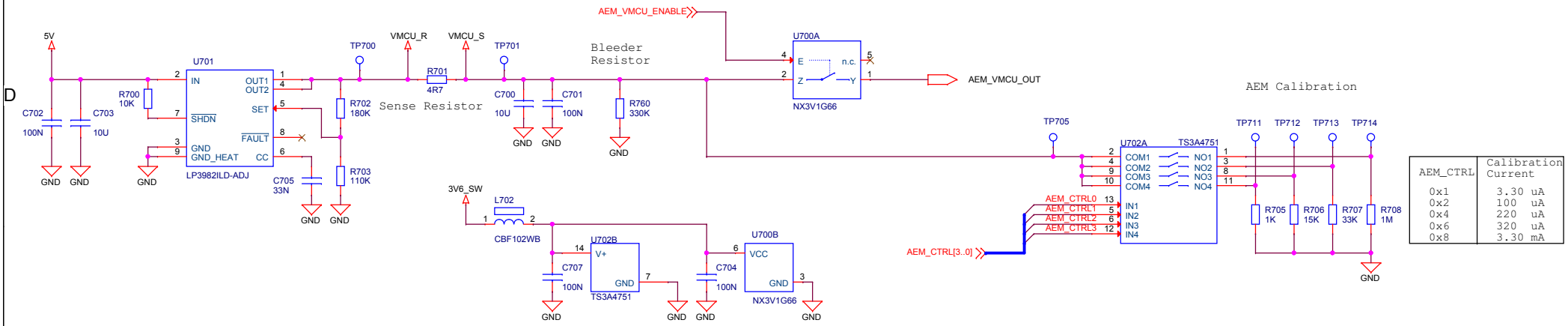
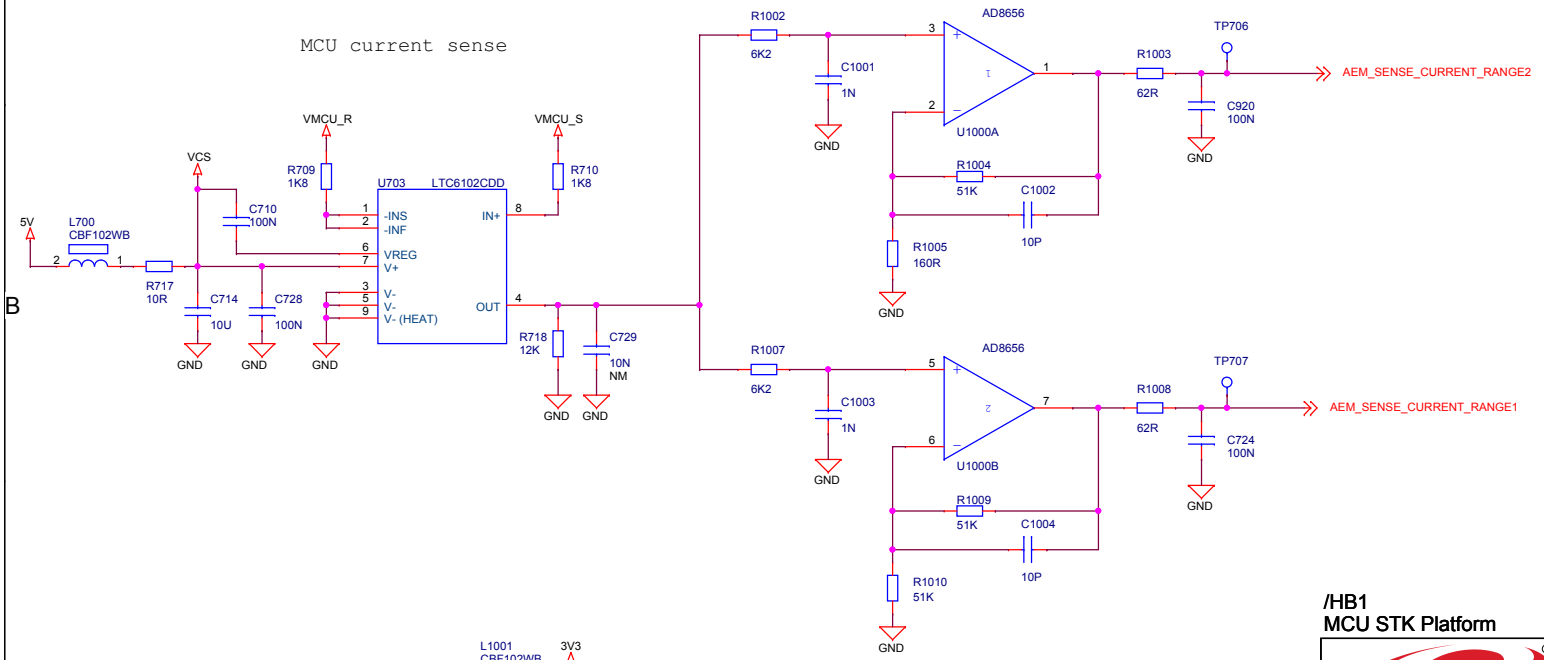
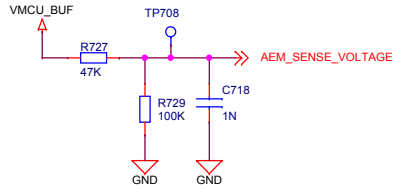
MCU power regulator

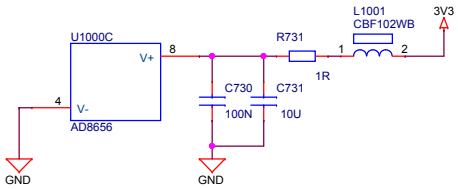


MCU current sense



MCU Voltage Sense





/HB1
MCU STK Platform

SILICON LABS

Designed: DDB	Approved: JNO
Size A3	BOM Doc No: <Cage Code>
Design Created Date: Monday, May 12, 2014	

Schematic Title
EFM32PG12 Pearl Gecko Starter Kit

Page Title
Advanced Energy Monitor

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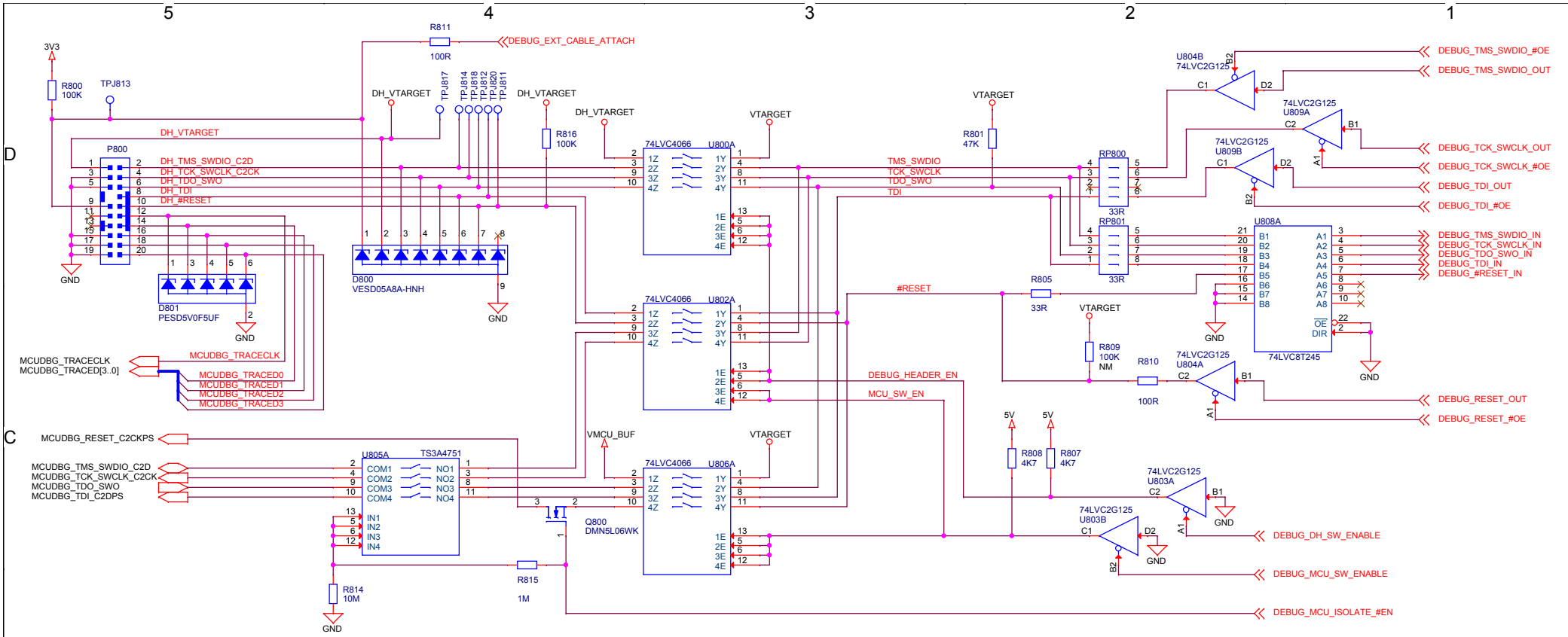
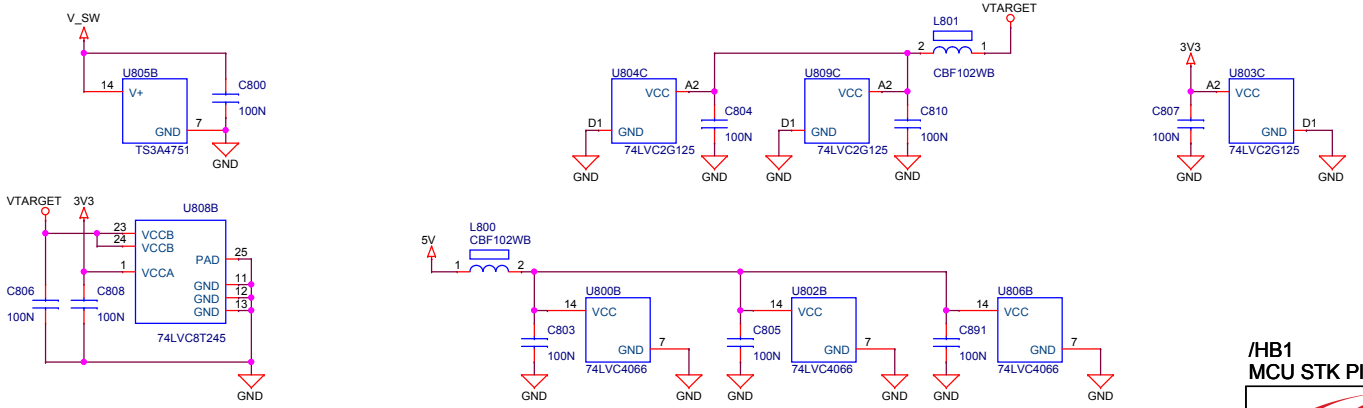
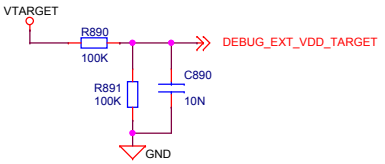


Power & Decoupling





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

SILICON LABS

Designed: DDB	Approved: JNO
Size A3	BOM Doc No: <Cage Code>
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Schematic Title
EFM32PG12 Pearl Gecko Starter Kit

Page Title
Debug Interface

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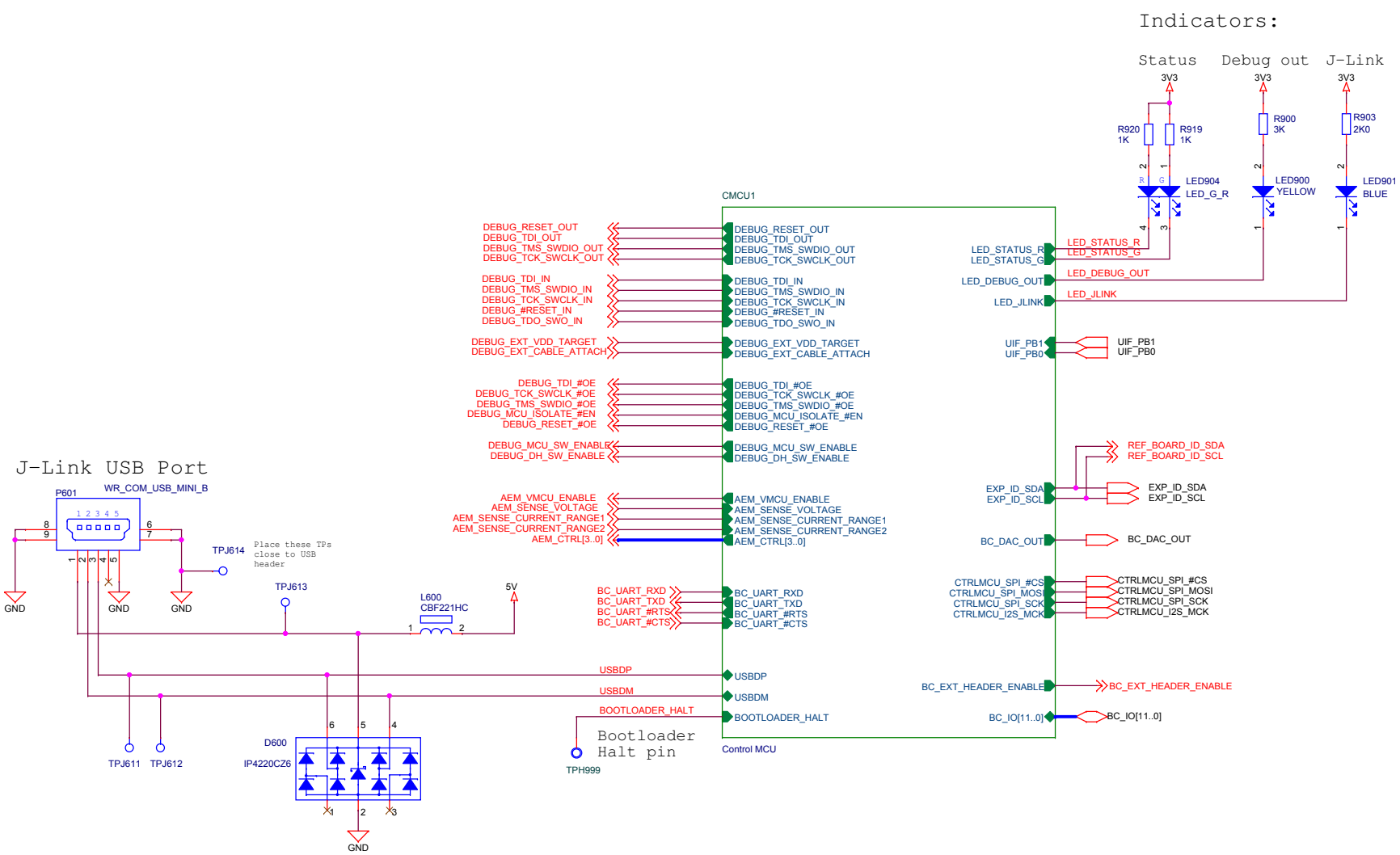

/HB1
MCU STK Platform

SILICON LABS

Schematic Title	EFM32PG12 Pearl Gecko Starter Kit
Page Title	Board Controller
Designed: DDB / Approved: JNO	
Size: A3 / BOM Doc No: <Cage Code>	Document number: BRD2501A / Revision: A01
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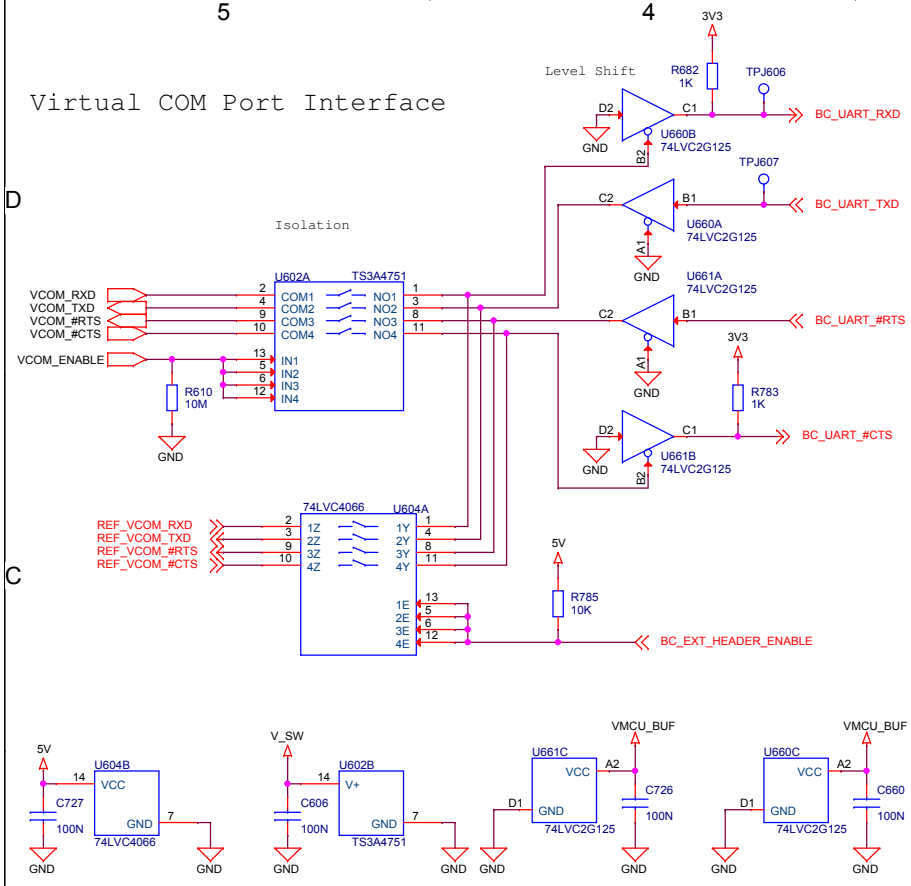
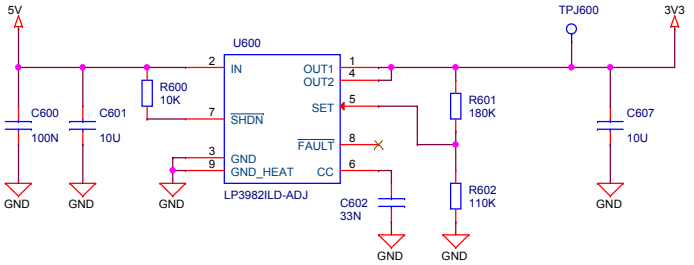
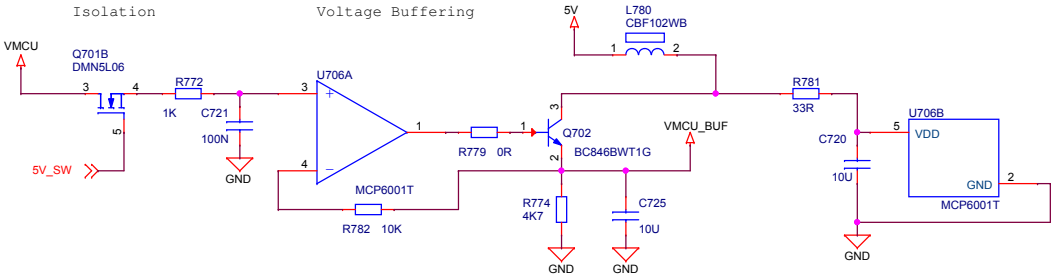
Virtual COM Port Interface



3V3 Regulator



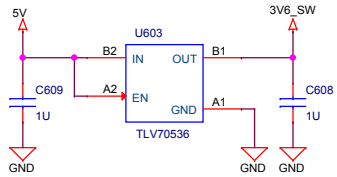
VMCU Voltage Mirror

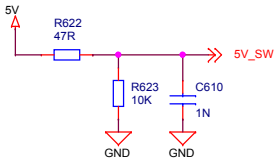


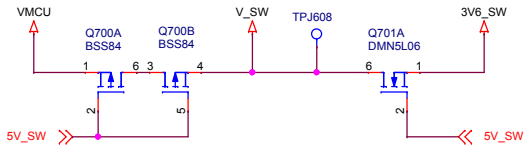
Power Supply for Analog Switches

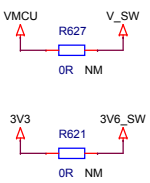
The USB VBUS voltage is used to bias these transistors, turning the P-Channel MOSFETs (Q700) off, and the N-Channel MOSFETs (Q701) on.

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



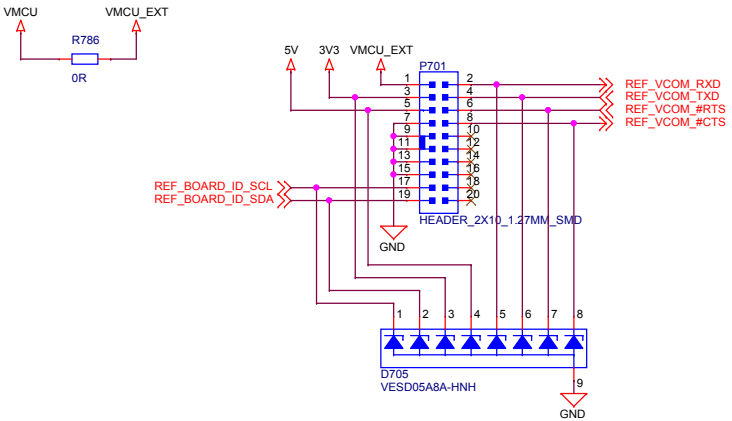






Connector for external reference designs boards

EXTERNAL BOARD



/HB1
MCU STK Platform

SILICON LABS

Designed: DDB	Approved: JNO
Size: A3	BOM Doc No: <Cage Code>
Design Created Date: Monday, May 12, 2014	

Schematic Title: **EFM32PG12 Pearl Gecko Starter Kit**

Page Title: **Power & Misc**

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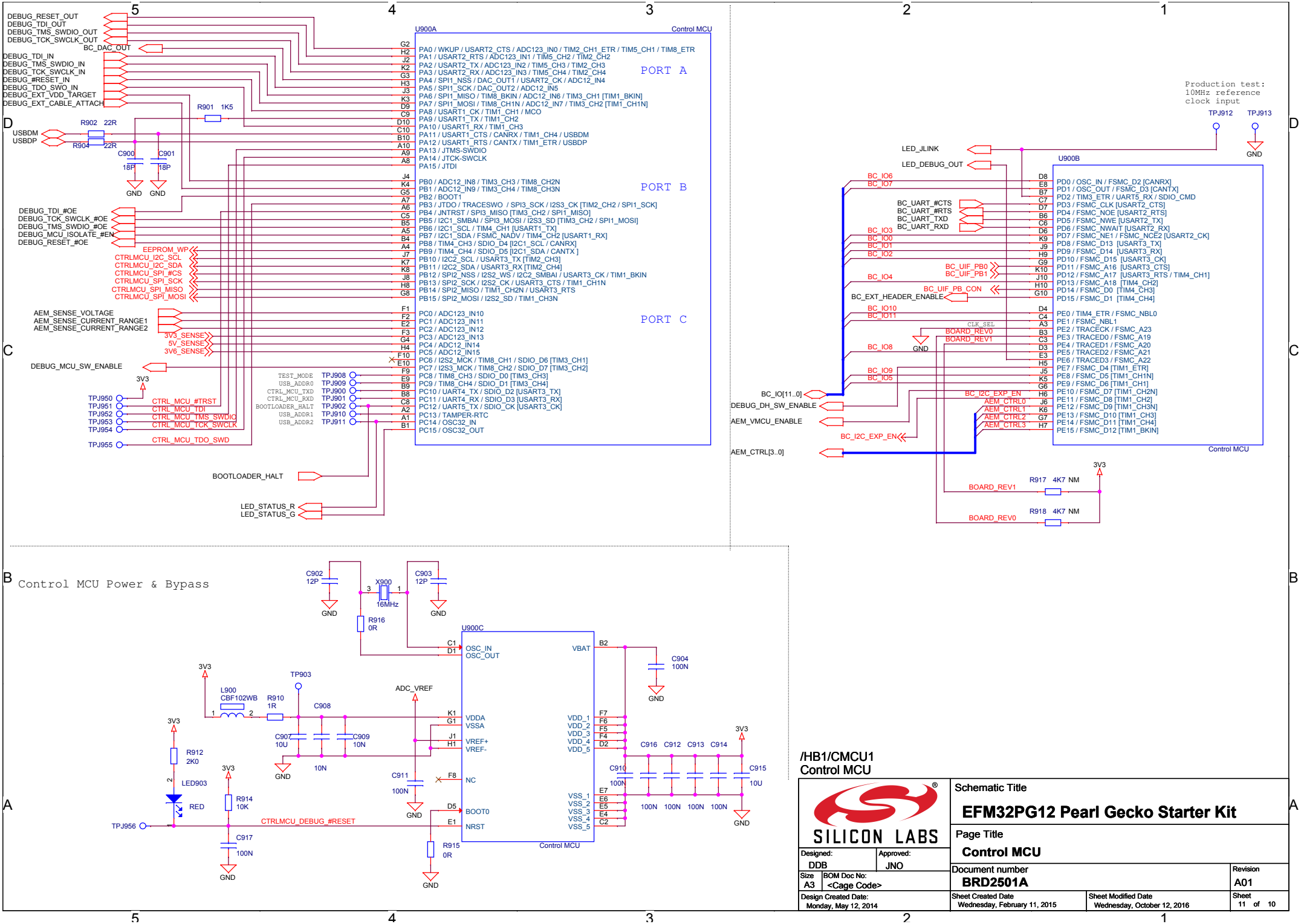
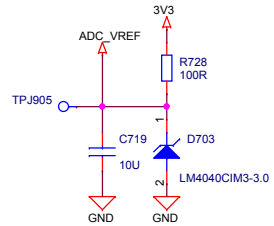
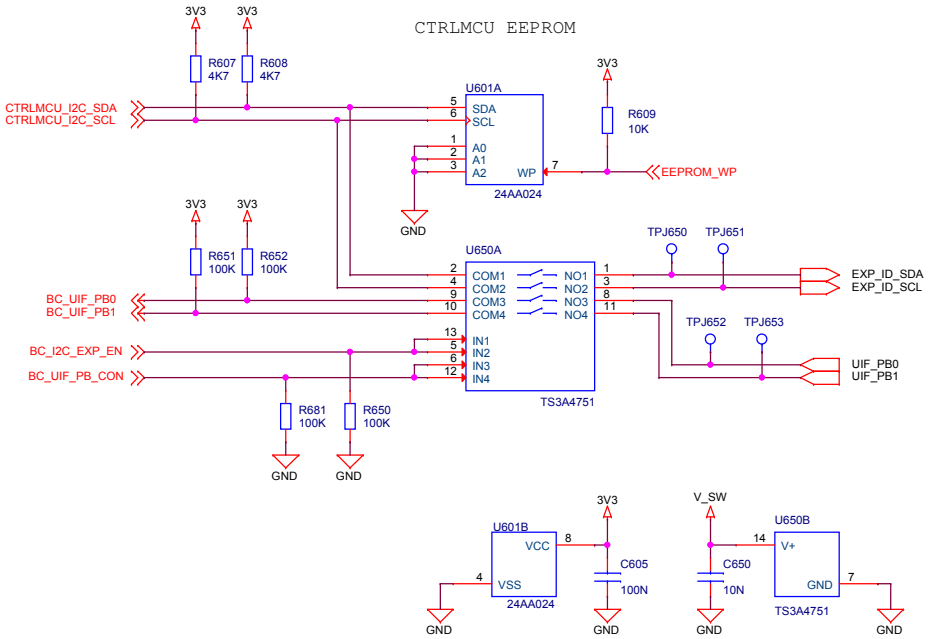


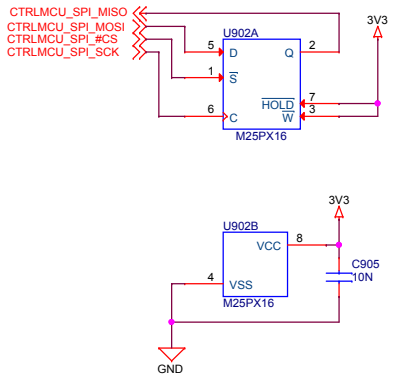
ADC reference voltage



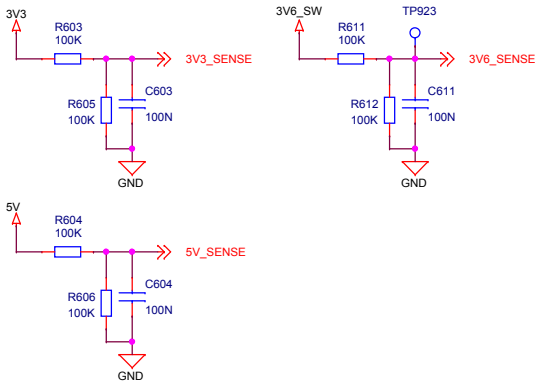
CTRLMCU EEPROM



CTRLMCU SERIAL FLASH



POWER SENSE



/HB1/CMCU1
Control MCU

SILICON LABS

Designed: DDB	Approved: JNO
Size: A3	BOM Doc No: <Cage Code>
Design Created Date: Monday, May 12, 2014	

Schematic Title
EFM32PG12 Pearl Gecko Starter Kit

Page Title
Board Controller Misc

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