



EFM32 Wonder Gecko STK

Board Function	Page
Title Page	1
User Interface	2
Signal Assignments	3
EFM32 I/O	4
EFM32 Power	5
LCD	6
Power & Misc	7
Advanced Energy Monitor	8
Debug Interface	9
Board Controller	10


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Revision History

Rev.	Description
A00	Initial released version. Update: Fixed EXP pinout description

STK

 SILICON LABS		Schematic Title	
		EFM32 Wonder Gecko Starter Kit	
Designed: DDB		Page Title	
Approved: JNO		Title Page	
Size: A3	BOM Doc No:	Document number	Revision
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Wednesday, December 03, 2008		Sheet Created Date	Sheet Modified Date
		Saturday, March 21, 2009	Wednesday, April 19, 2017
			Sheet 1 of 10

This schematic diagram illustrates the hardware connections for the EFM32 Wonder Gecko Starter Kit, organized into functional blocks and a component specification table.

Functional Blocks

- Breakout Connections:** Shows connections for MCU pins (PA12-PA14, PB8-PB12, PC0-PC7, PC8-PC11, PD0-PD15, PE0-PE3, PF8-PF9) to headers TPJ100-TPJ148 and TPJ129-TPJ132.
- LESENSE LC-Sensor:** Circuit including R198, C199, C198, L100, and R196, connected to DAC_LC_EXCITE and LES_LC_SENSE.
- Power:** Connections for VMCU, 3V3, and 5V to headers TPJ133-TPJ144.
- Photo Transistor:** Circuit with Q100 (TEMT6200FX01), R199, and connections to LES_LIGHT_EXCITE and LES_LIGHT_SENSE.
- User LEDs:** Circuit with UIF_LED0, UIF_LED1, R107, R108, LED101, and LED100, connected to UIF_LED[1..0].
- NAND Power:** Circuit with NAND_PWR_EN, R106, C106, and the TS5A3186 buffer.
- 32MB NAND Flash:** Connections for NAND_IQ[7..0], NAND_WP#, NAND_R/B#, NAND_CE#, NAND_RE#, NAND_WE#, NAND_ALE, and NAND_CLE to U100A and U100C (NAND256W3A).
- EXP port:** Connections for EXP_HEADER[14..0] to the P100 header.
- Touch Slider:** Connections for UIF_TOUCH[3..0] to the T1 TOUCH SLIDER.
- User pushbuttons:** Circuit with VMCU, R101, R102, SW100, SW101, C100, C101, and R103, connected to UIF_PB0 and UIF_PB1.
- EXP Communication:** Table defining communication signals for SPI, I2C1, UART, and LEUART.

Signal	Header
MOSI	PD0
MISO	PD1
CLK	PD2
CS	PD3
SDA	PC4
SCL	PC5
TX	PD0
RX	PD1
TX	PD4
RX	PD5

Component Specification Table

Part Number	Manufacturer	Value
U100A	ST	NAND256W3A
U100B	ST	NAND256W3A
U100C	ST	NAND256W3A
U101	TI	TS5A3186
Q100	TEMT	TEMT6200FX01
R101, R102, R103, R104, R105, R106, R107, R108	ST	1M
R196, R198, R199	ST	1K5, 0R, 22K
C100, C101, C103, C104, C105, C106	ST	1N, 100N, 100N, 100N, 10U
L100	ST	390UH
LED100, LED101	ST	YELLOW
SW100, SW101	ST	1N

STK Component Table

Part Number	Manufacturer	Value
U100A	ST	NAND256W3A
U100B	ST	NAND256W3A
U100C	ST	NAND256W3A
U101	TI	TS5A3186
Q100	TEMT	TEMT6200FX01
R101, R102, R103, R104, R105, R106, R107, R108	ST	1M
R196, R198, R199	ST	1K5, 0R, 22K
C100, C101, C103, C104, C105, C106	ST	1N, 100N, 100N, 100N, 10U
L100	ST	390UH
LED100, LED101	ST	YELLOW
SW100, SW101	ST	1N

STK Component Table

Part Number	Manufacturer	Value
U100A	ST	NAND256W3A
U100B	ST	NAND256W3A
U100C	ST	NAND256W3A
U101	TI	TS5A3186
Q100	TEMT	TEMT6200FX01
R101, R102, R103, R104, R105, R106, R107, R108	ST	1M
R196, R198, R199	ST	1K5, 0R, 22K
C100, C101, C103, C104, C105, C106	ST	1N, 100N, 100N, 100N, 10U
L100	ST	390UH
LED100, LED101	ST	YELLOW
SW100, SW101	ST	1N

STK Component Table

Part Number	Manufacturer	Value
U100A	ST	NAND256W3A
U100B	ST	NAND256W3A
U100C	ST	NAND256W3A
U101	TI	TS5A3186
Q100	TEMT	TEMT6200FX01
R101, R102, R103, R104, R105, R106, R107, R108	ST	1M
R196, R198, R199	ST	1K5, 0R, 22K
C100, C101, C103, C104, C105, C106	ST	1N, 100N, 100N, 100N, 10U
L100	ST	390UH
LED100, LED101	ST	YELLOW
SW100, SW101	ST	1N

STK Component Table

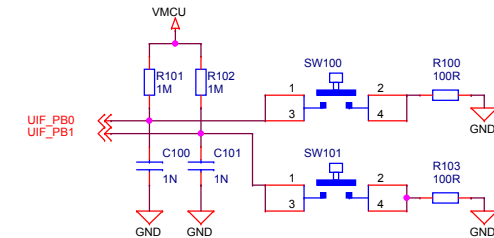
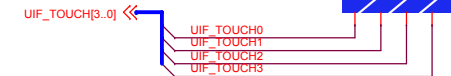
Part Number	Manufacturer	Value
U100A	ST	NAND256W3A
U100B	ST	NAND256W3A
U100C	ST	NAND256W3A
U101	TI	TS5A3186
Q100	TEMT	TEMT6200FX01
R101, R102, R103, R104, R105, R106, R107, R108	ST	1M
R196, R198, R199	ST	1K5, 0R, 22K
C100, C101, C103, C104, C105, C106	ST	1N, 100N, 100N, 100N, 10U
L100	ST	390UH
LED100, LED101	ST	YELLOW
SW100, SW101	ST	1N

STK Component Table

Part Number	Manufacturer	Value
U100A	ST	NAND256W3A
U100B	ST	NAND256W3A
U100C	ST	NAND256W3A
U101	TI	TS5A3186
Q100	TEMT	TEMT6200FX01
R101, R102, R103, R104, R105, R106, R107, R108	ST	1M
R196, R198, R199	ST	1K5, 0R, 22K
C100, C101, C103, C104, C105, C106	ST	1N, 100N, 100N, 100N, 10U
L100	ST	390UH
LED100, LED101	ST	YELLOW
SW100, SW101	ST	1N

STK Component Table

Part Number	Manufacturer	Value
U100A	ST	NAND256W3A
U100B	ST	NAND256W3A
U100C	ST	NAND256W3A
U101	TI	TS5A3186
Q100	TEMT	TEMT6200FX01
R101, R102, R103, R104, R105, R106, R107, R108	ST	1M
R196, R198, R199	ST	1K5, 0R, 22K
C100, C101, C103, C104, C105, C106	ST	1N, 100N, 100N, 100N, 10U
L100	ST	390UH
LED100, LED101</		



This schematic diagram illustrates the hardware connections for the EFM32 Wonder Gecko Starter Kit, organized into functional blocks and a component specification table.

Functional Blocks and Connections

- Breakout Connections:** Shows connections for MCU pins (PA12-PA14, PB8-PB12, PC0-PC7, PC8-PC11, PD0-PD15, PE0-PE3, PF8-PF9) to TPJ100-TPJ148 headers.
- Touch Slider:** Connects UIF_TOUCH[3..0] to a TOUCH SLIDER component (T1).
- User pushbuttons:** Shows two pushbutton circuits (SW100, SW101) connected to UIF_PB0-UIF_PB1 and VMCU.
- EXP port:** Connects EXP_HEADER[14..0] to a P100 header, mapping various EXP headers to PC, PD, PB, and PD pins.
- LESENSE LC-Sensor:** Shows a circuit with R198, C199, C198, L100, and R196 connected to DAC_LC_EXCITE and LES_LC_SENSE.
- Power:** Shows VMCU, 3V3, and 5V connections to TPJ133-TPJ144 headers.
- Photo Transistor:** Shows a circuit with Q100 (TEMT6200FX01), R199 (22K), and R198 connected to LES_LIGHT_EXCITE and LES_LIGHT_SENSE.
- User LEDs:** Shows two yellow LEDs (LED101, LED100) connected to UIF_LED0-UIF_LED1 and VMCU.
- 32MB NAND Flash:** Shows connections for NAND_IQ[7..0], NAND_R/B#, NAND_CE#, NAND_RE#, NAND_WE#, NAND_ALE, and NAND_CLE to U100A and U100C (NAND256W3A).
- NAND Power:** Shows a circuit with U101 (TS5A3166) connected to NAND_PWR_EN and VMCU.

Component Specification Table

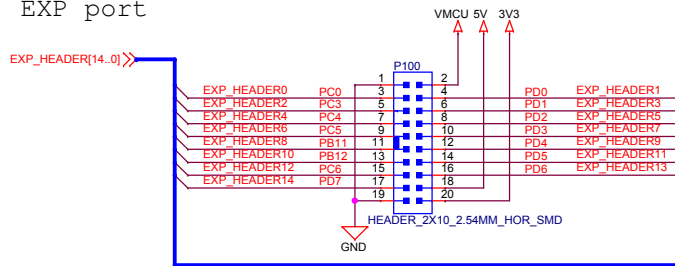
Part	Value	Part	Value
U100A	NAND256W3A	U100B	NAND256W3A
U100C	NAND256W3A	U101	TS5A3166
Q100	TEMT6200FX01	LED101	YELLOW
LED100	YELLOW	SW100	Pushbutton
SW101	Pushbutton	R101	1M
R102	1M	R103	100R
C100	1N	C101	1N
L100	390UH	R196	1K5
R198	0R	C198	330P
C199	100N	R199	22K

Table 1: Component Values

Part	Value
U100A	NAND256W3A
U100B	NAND256W3A
U100C	NAND256W3A
U101	TS5A3166
Q100	TEMT6200FX01
LED101	YELLOW
LED100	YELLOW
SW100	Pushbutton
SW101	Pushbutton
R101	1M
R102	1M
R103	100R
C100	1N
C101	1N
L100	390UH
R196	1K5
R198	0R
C198	330P
C199	100N
R199	22K

Table 2: Component Values

Part	Value
U100A	NAND256W3A
U100B	NAND256W3A
U100C	NAND256W3A
U101	TS5A3166
Q100	TEMT6200FX01
LED101	YELLOW
LED100	YELLOW
SW100	Pushbutton
SW101	Pushbutton
R101	1M
R102	1M
R103	100R
C100	1N
C101	1N
L100	390UH
R196	1K5
R198	0R
C198	330P
C199	100N
R199	22K

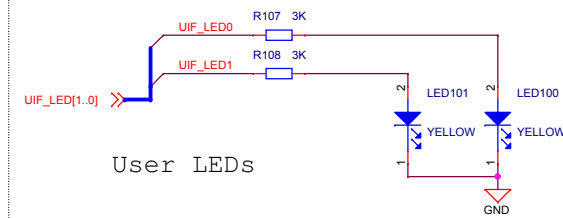
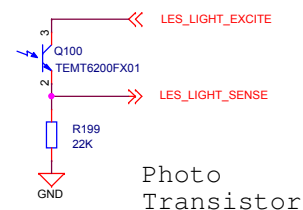
EXP Communication

```
SPI    MOSI-PD0
        MISO-PD1
        CLK-PD2
        CS-PD3
```

```
I2C1    SDA-PC4
        SCL-PC5
```

```
UART TX-PD0
      RX-PD1
```

LEUART	TX-PD4
	RX-PD5



This schematic diagram illustrates the hardware connections for the EFM32 Wonder Gecko Starter Kit, organized into functional blocks and a component specification table.

Functional Blocks

- Breakout Connections:** Shows connections for MCU pins (PA12-PA14, PB8-PB12, PC0-PC7, PC8-PC11, PD0-PD15, PE0-PE3, PF8-PF9) to TPJ100-TPJ148 headers.
- Touch Slider:** Connects UIF_TOUCH0-UIF_TOUCH3 to TPJ127-TPJ132 headers.
- User pushbuttons:** Shows two pushbutton circuits (SW100, SW101) connected to VMCU, R101/R102, C100/C101, and R103 headers.
- EXP port:** Connects EXP_HEADER0-EXP_HEADER14 to P100 headers and PD0-PD6 to EXP_HEADER1-EXP_HEADER13.
- LESENSE LC-Sensor:** Shows a circuit with R198, C199, R196, and L100 connected to DAC_LC_EXCITE and LES_LC_SENSE.
- Power:** Shows connections for VMCU, 3V3, and 5V to TPJ133-TPJ144 headers.
- Photo Transistor:** Shows a circuit with Q100 (TEMT6200FX01) and R199 connected to LES_LIGHT_EXCITE and LES_LIGHT_SENSE.
- User LEDs:** Shows two yellow LEDs (LED101, LED100) connected to UIF_LED0, UIF_LED1, and R107/R108.
- 32MB NAND Flash:** Shows connections for NAND_IQ[7..0], VMCU_NAND, NAND_WP#, NAND_R/B#, NAND_CE#, NAND_RE#, NAND_WE#, NAND_ALE, and NAND_CLE to U100A, U100B, and U100C NAND256W3A chips.
- NAND Power:** Shows a circuit with U101 (TS5A3166) connected to VMCU, NAND_PWR_EN, R106, C106, and VMCU_NAND.

Component Specification Table

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Designed: DDB		Approved: JNO	

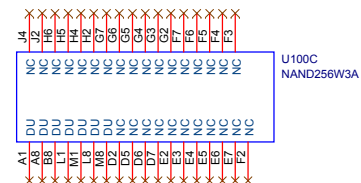
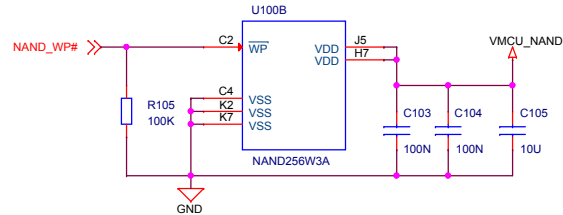
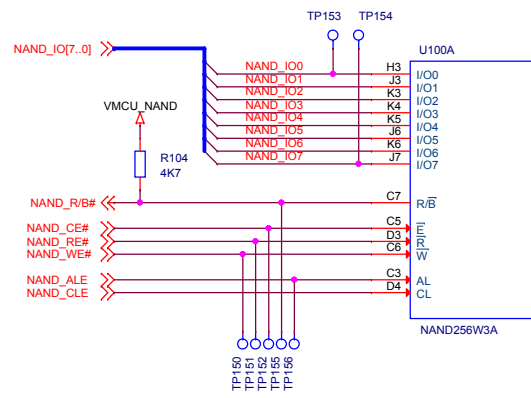
STK

SILICON LABS

Schematic Title
EFM32 Wonder Gecko Starter Kit

Page Title
User Interfaces

Sheet 2 of 10



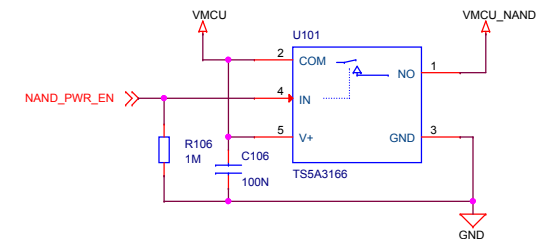
This schematic diagram illustrates the hardware connections for the EFM32 Wonder Gecko Starter Kit, organized into functional blocks and a component specification table.

Functional Blocks

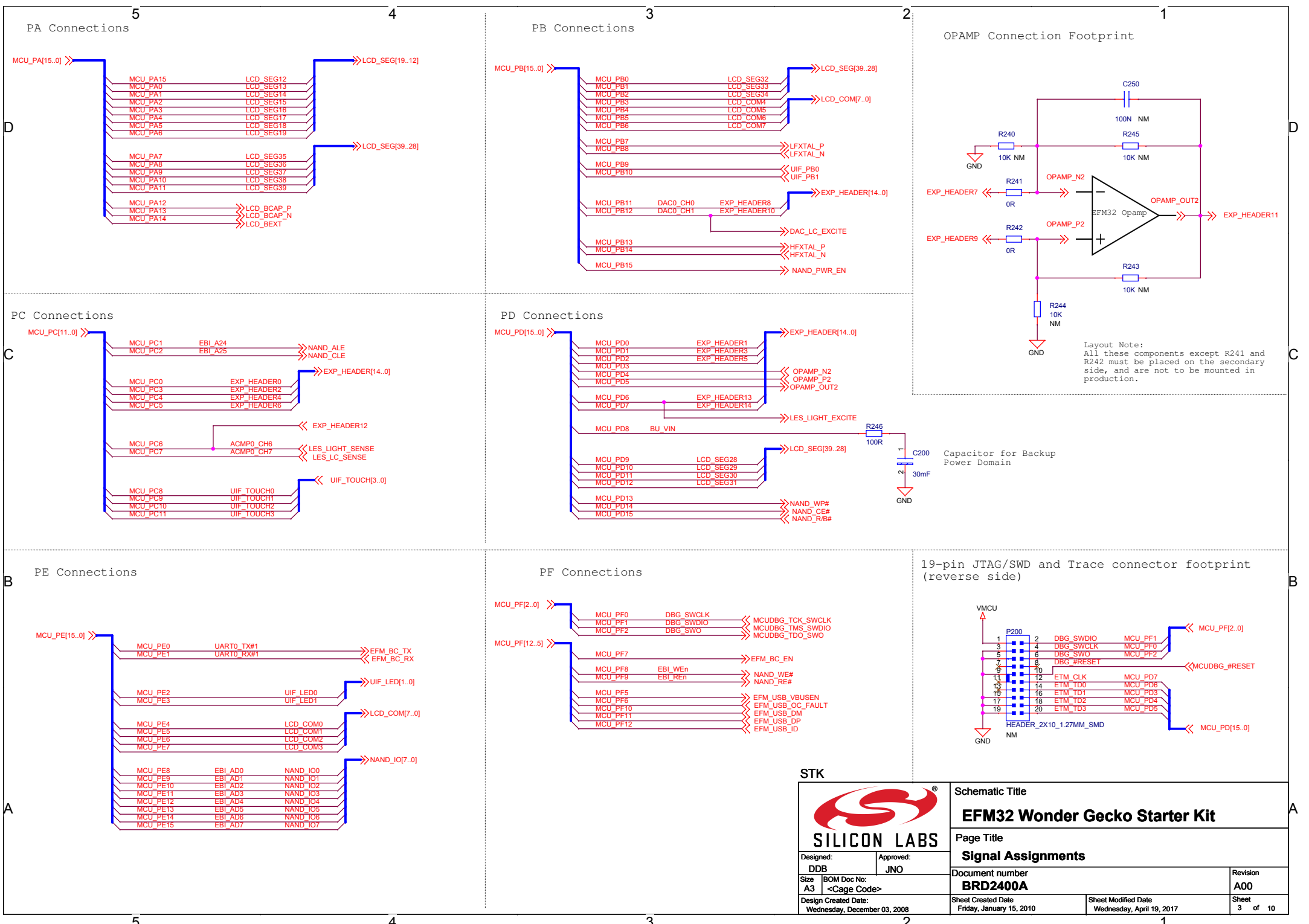
- Breakout Connections:** Shows connections for MCU pins (PA12-PA14, PB8-PB12, PC0-PC7, PC8-PC11, PD0-PD15, PE0-PE3, PF8-PF9) to TPJ100-TPJ148 headers.
- LESENSE LC-Sensor:** Includes a DAC circuit (R198, C199, L100) and a sense circuit (R196) connected to the MCU.
- Power:** Shows VMCU, 3V3, and 5V power rails connected to TPJ133-TPJ144 headers.
- Touch Slider:** Connects UIF_TOUCH0-UIF_TOUCH3 to TPJ127-TPJ132 headers.
- User pushbuttons:** Shows two pushbutton circuits (SW100, SW101) connected to TPJ100-TPJ104 headers.
- EXP port:** Connects EXP_HEADER0-EXP_HEADER14 to TPJ115-TPJ117 headers.
- Photo Transistor:** Includes a photo transistor (Q100) and a sense circuit (R199) connected to TPJ139-TPJ144 headers.
- User LEDs:** Shows two yellow LEDs (LED101, LED100) connected to TPJ141-TPJ144 headers.
- 32MB NAND Flash:** Shows connections for NAND_IQ[7..0], NAND_WP#, NAND_R/B#, NAND_CE#, NAND_RE#, NAND_WE#, NAND_ALE, and NAND_CLE to TPJ153-TPJ154 headers.
- NAND Power:** Shows VMCU and VMCU_NAND power rails connected to TPJ153-TPJ154 headers.

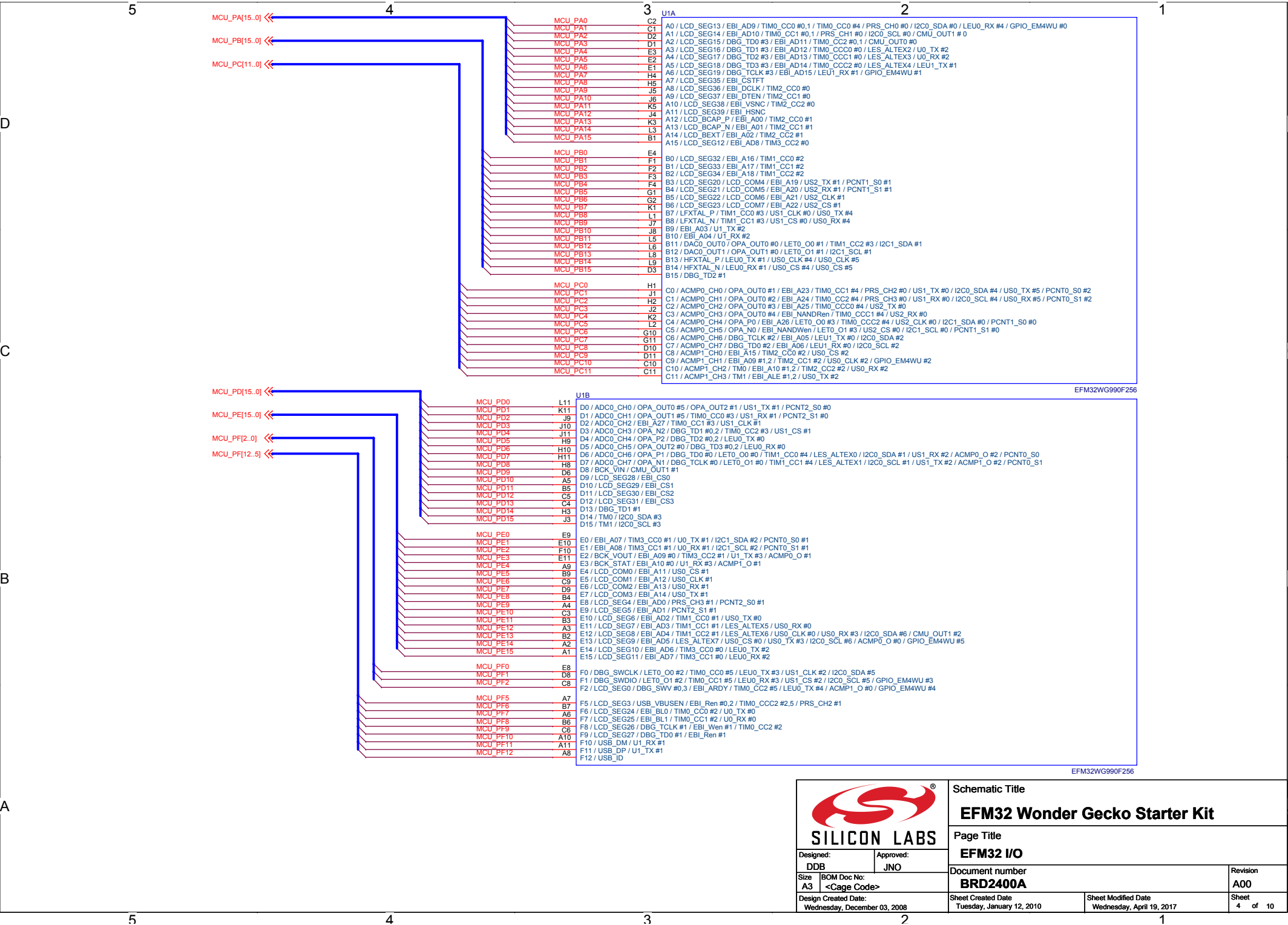
Component Specification Table

Part	Value	Part	Value
MCU_PA12	TPJ100	MCU_PD0	TPJ118
MCU_PA13	TPJ101	MCU_PD1	TPJ119
MCU_PA14	TPJ102	MCU_PD2	TPJ120
MCU_PB8	TPJ145	MCU_PD3	TPJ121
MCU_PB9	TPJ146	MCU_PD4	TPJ122
MCU_PB10	TPJ147	MCU_PD5	TPJ123
MCU_PB11	TPJ148	MCU_PD6	TPJ124
MCU_PB12	TPJ149	MCU_PD7	TPJ125
MCU_PC0	TPJ105	MCU_PD8	TPJ126
MCU_PC1	TPJ106	MCU_PD9	TPJ127
MCU_PC2	TPJ107	MCU_PD10	TPJ128
MCU_PC3	TPJ108	MCU_PD11	TPJ129
MCU_PC4	TPJ109	MCU_PD12	TPJ130
MCU_PC5	TPJ110	MCU_PD13	TPJ131
MCU_PC6	TPJ111	MCU_PD14	TPJ132
MCU_PC7	TPJ112	MCU_PD15	TPJ133
MCU_PC8	TPJ113	MCU_PE0	TPJ134
MCU_PC9	TPJ114	MCU_PE1	TPJ135
MCU_PC10	TPJ115	MCU_PE2	TPJ136
MCU_PC11	TPJ116	MCU_PE3	TPJ137
MCU_PF8	TPJ117	MCU_PF9	TPJ138
MCU_PF9	TPJ118		



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Document number BRD2400A				Revision A00	
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				Sheet Modified Date Wednesday, April 19, 2017	
				Sheet 2 of 10	





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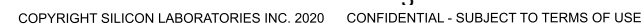
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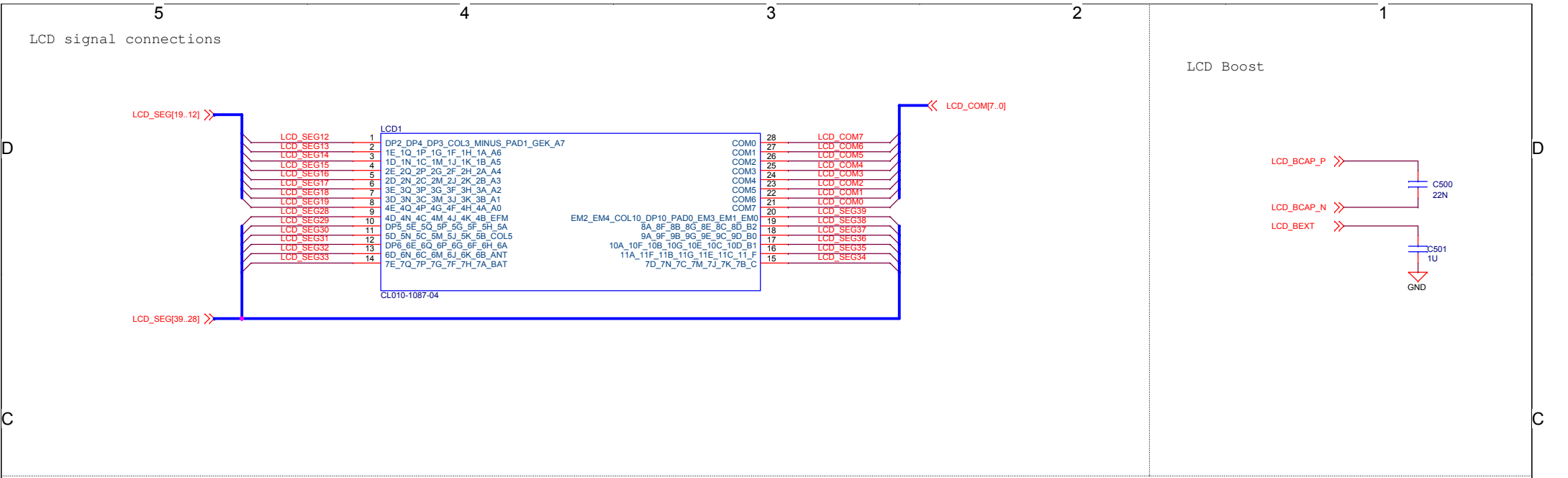
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Schematic Title			
EFM32 Wonder Gecko Starter Kit			
Page Title			
EFM32 I/O			
Document number			Revision
BRD2400A			A00
Sheet Created Date	Sheet Modified Date	Sheet	
Tuesday, January 12, 2010	Wednesday, April 19, 2017	4 of 10	





Segment names

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14
---	S0	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13
COM0	DP2	1 E	1 D	2 E	2 D	3 E	3 D	4 E	4 D	DP5	5 D	DP6	6 D	7 E
COM1	DP4	1 Q	1 N	2 Q	2 N	3 Q	3 N	4 Q	4 N	5 E	5 N	6 E	6 N	7 Q
COM2	DP3	1 P	1 C	2 P	2 C	3 P	3 C	4 P	4 C	5 Q	5 C	6 Q	6 C	7 P
COM3	COL3	1 G	1 M	2 G	2 M	3 G	3 M	4 G	4 M	5 P	5 M	6 P	6 M	7 G
COM4	MINUS	1 F	1 J	2 F	2 J	3 F	3 J	4 F	4 J	5 G	5 J	6 G	6 J	7 F
COM5	PAD1	1 H	1 K	2 H	2 K	3 H	3 K	4 H	4 K	5 F	5 K	6 F	6 K	7 H
COM6	GEK	1 A	1 B	2 A	2 B	3 A	3 B	4 A	4 B	5 H	5 B	6 H	6 B	7 A
COM7	A7	A6	A5	A4	A3	A2	A1	A0	EFM	5 A	COL5	6 A	ANT	BAT

Segment placement

STK

Schematic Title		Revision	
EFM32 Wonder Gecko Starter Kit		A00	
Page Title		Revision	
LCD		A00	
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Design Date		Sheet Created Date	
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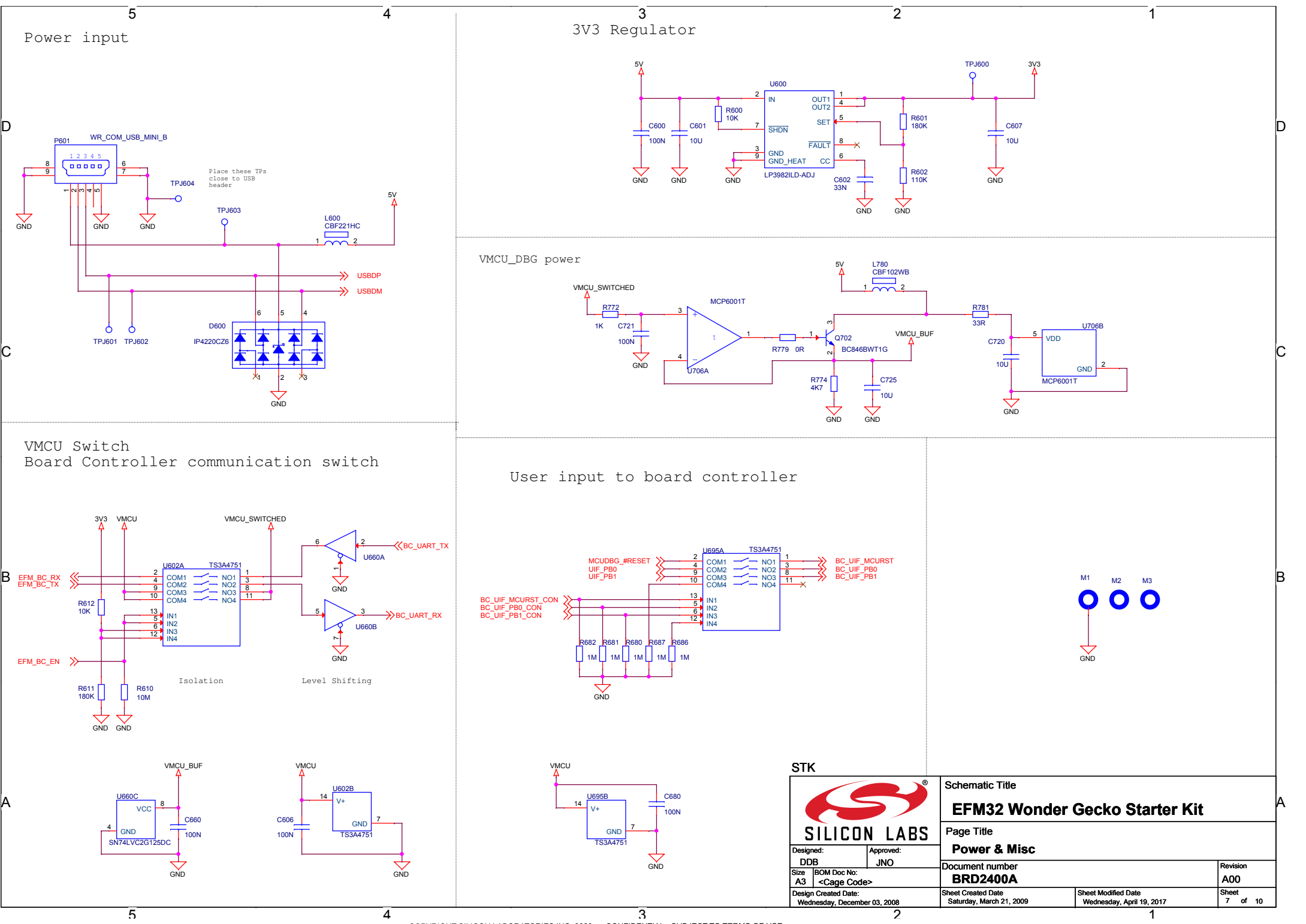
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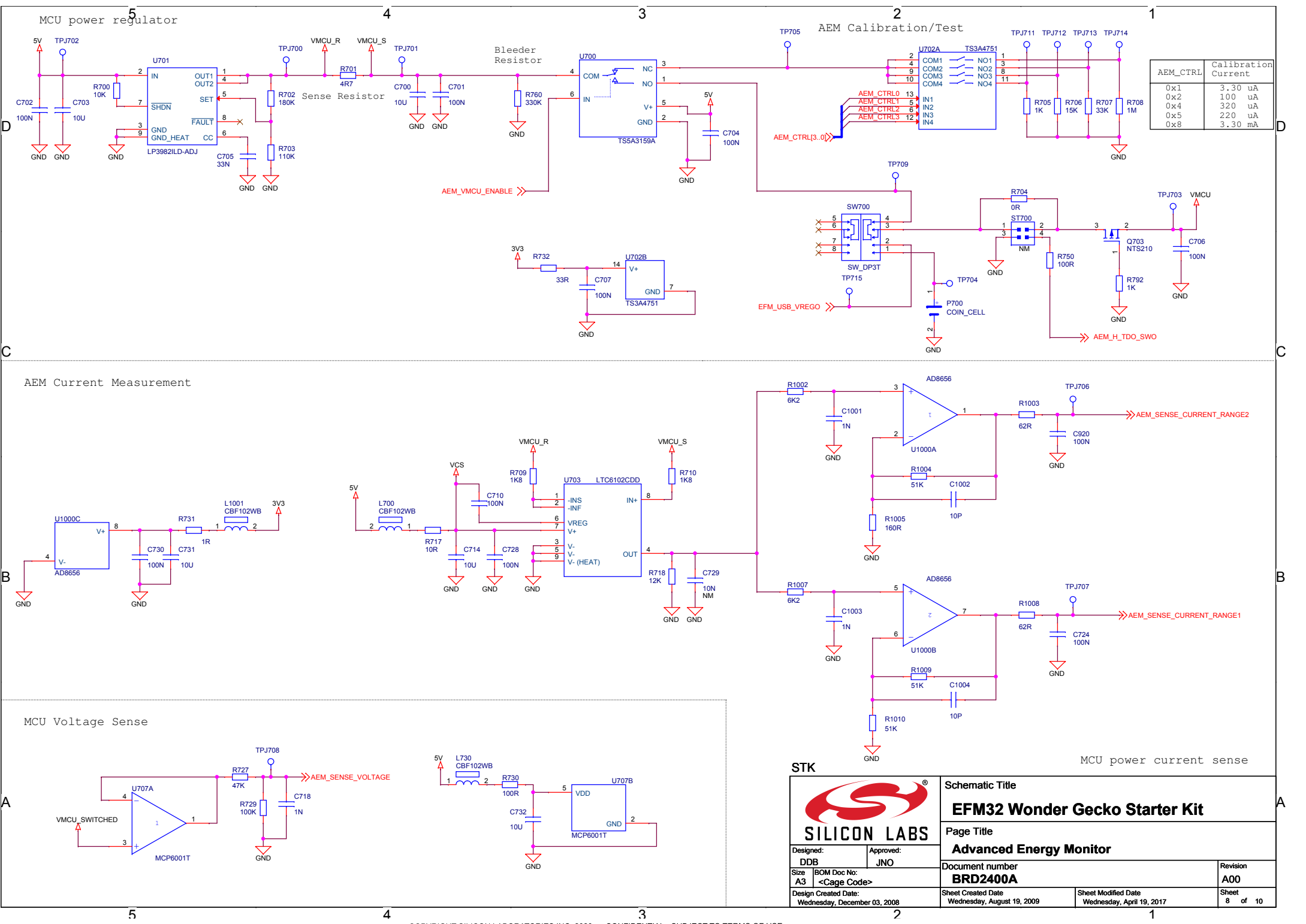
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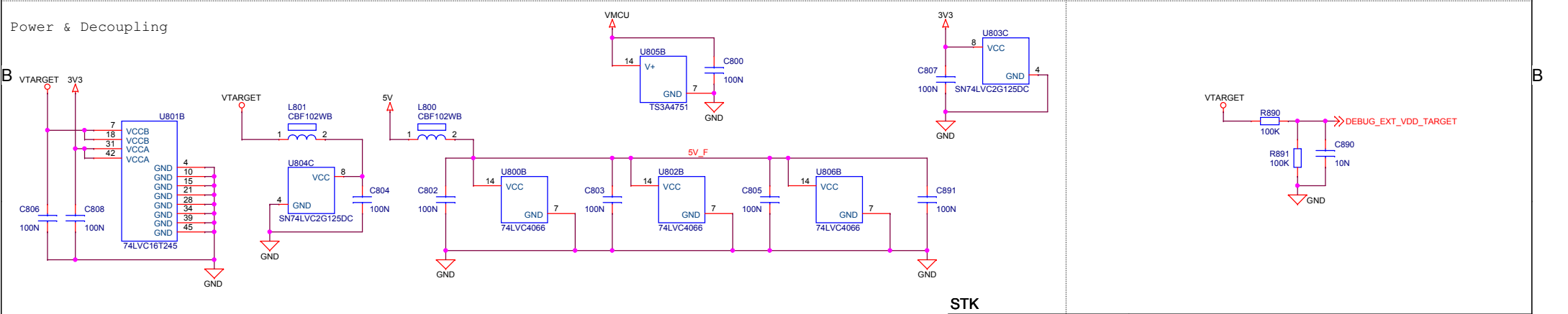
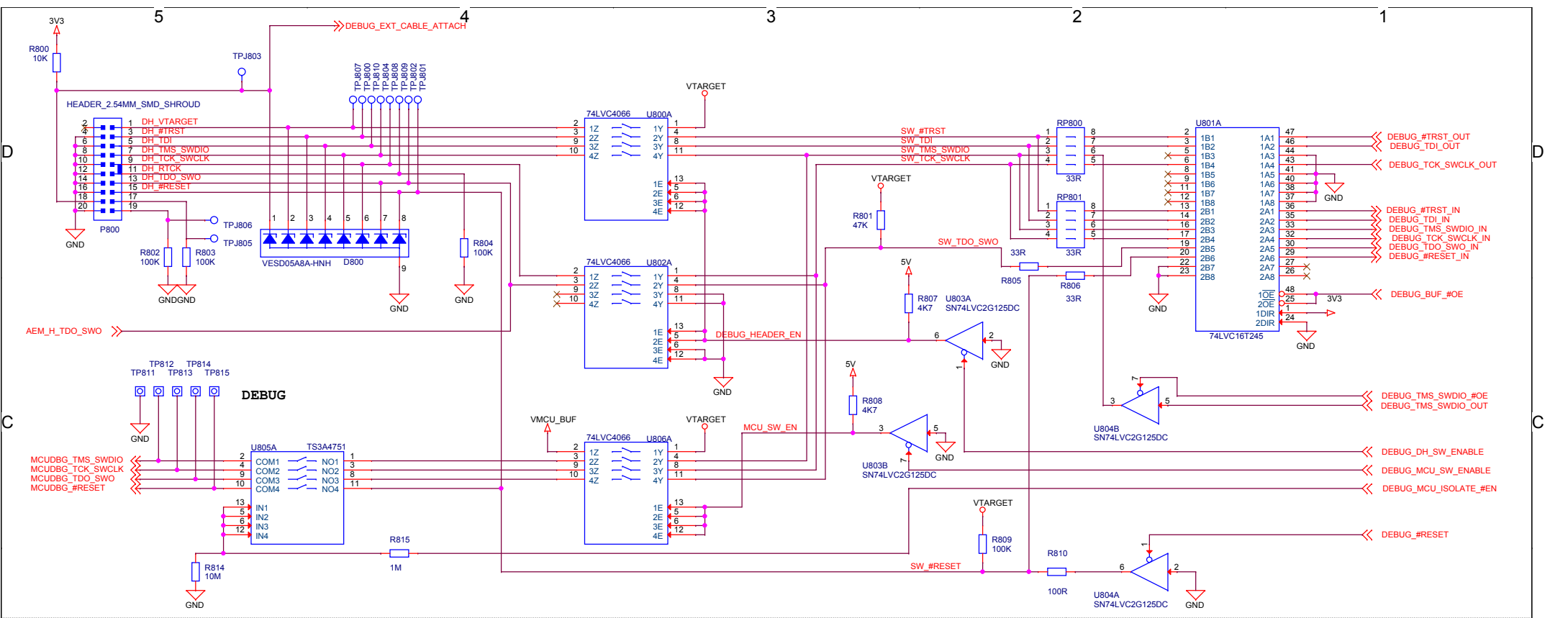
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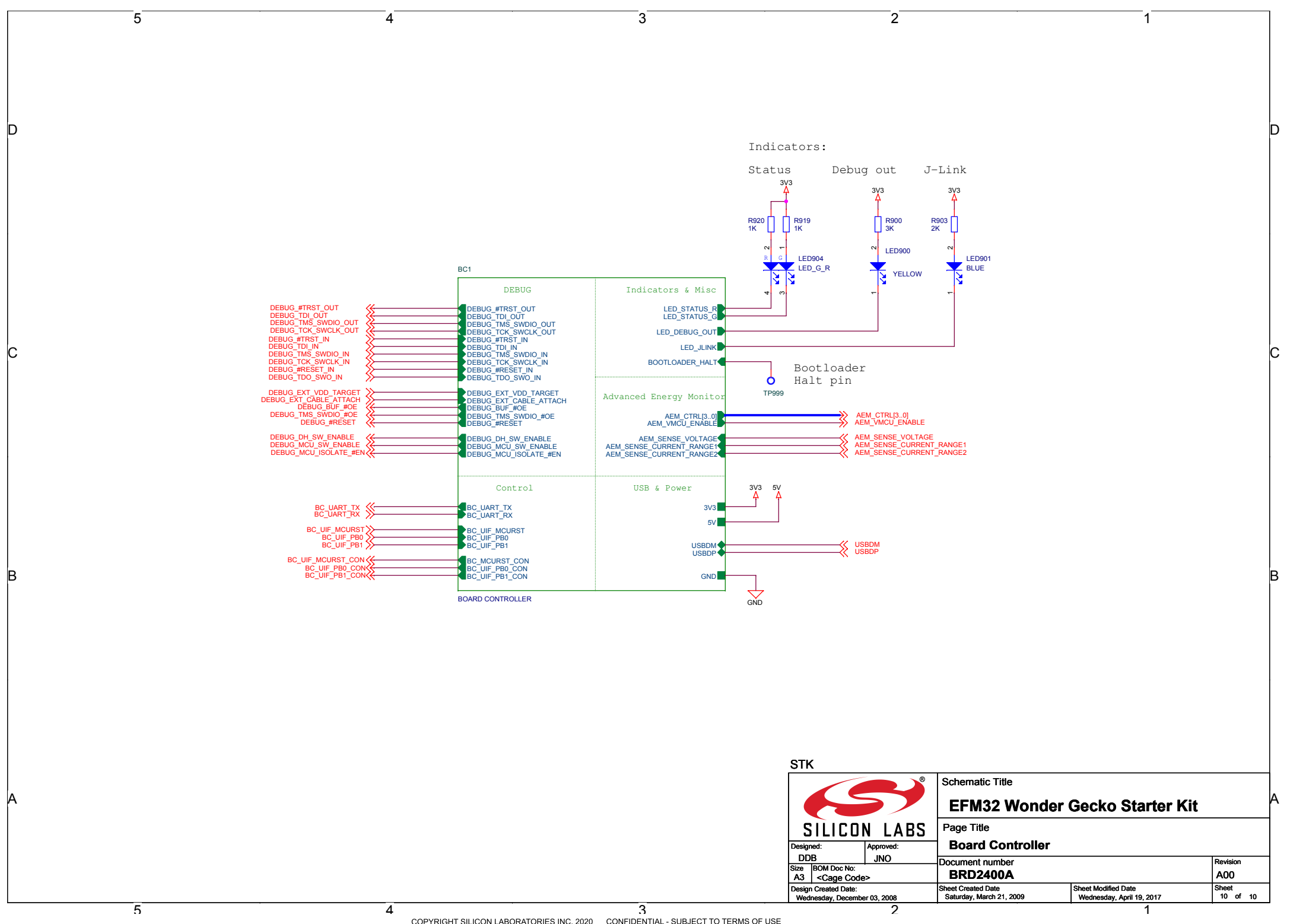


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		Page Title Power & Misc	
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Design Created Date: Wednesday, December 03, 2008		Sheet 7 of 10	






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<div><div>Schematic Title: EFM32 Wonder Gecko Starter Kit</div><div>Page Title: Debug Interface</div></div>																																									
<table><thead><tr><th>Mode</th><th>DEBUG_MCU_SW_ENABLE</th><th>DEBUG_DH_SW_ENABLE</th><th>DEBUG_BUF_#OE</th><th>ISOLATE_#EN</th><th>DH_VTARGET</th><th>VTARGET</th></tr></thead><tbody><tr><td>Debug Out</td><td>0</td><td>1</td><td>0</td><td>0</td><td>External voltage</td><td>External voltage</td></tr><tr><td>MCU Debug</td><td>1</td><td>0</td><td>0</td><td>1</td><td>Disconnected</td><td>VMCU</td></tr><tr><td>Debug In</td><td>1</td><td>1</td><td>1</td><td>1</td><td>VMCU</td><td>VMCU</td></tr><tr><td>Debug Off</td><td>1</td><td>1</td><td>1</td><td>0</td><td>-</td><td>-</td></tr></tbody></table>							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	-	-
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	-	-																																			



STK

 <div>SILICON LABS</div>		Schematic Title	
		EFM32 Wonder Gecko Starter Kit	
Page Title		Board Controller	
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Design Created Date: Wednesday, December 03, 2008	Sheet Created Date Saturday, March 21, 2009	Sheet Modified Date Wednesday, April 19, 2017	Sheet 10 of 10