




Wireless Pro Kit Mainboard	
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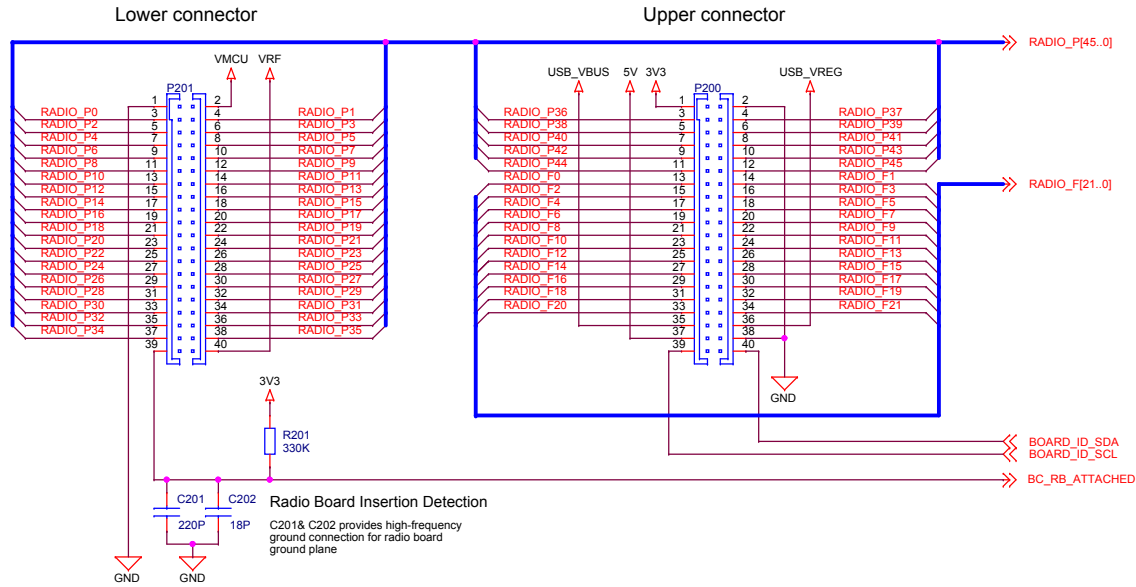
Revision History	
Rev.	Description
A05	Initial release.



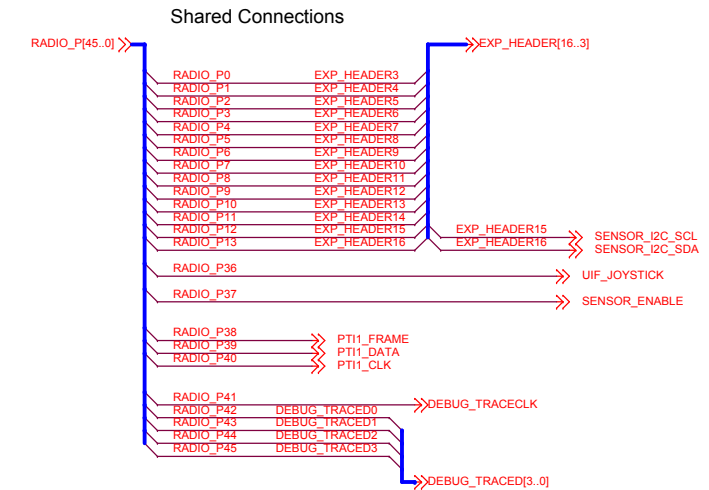
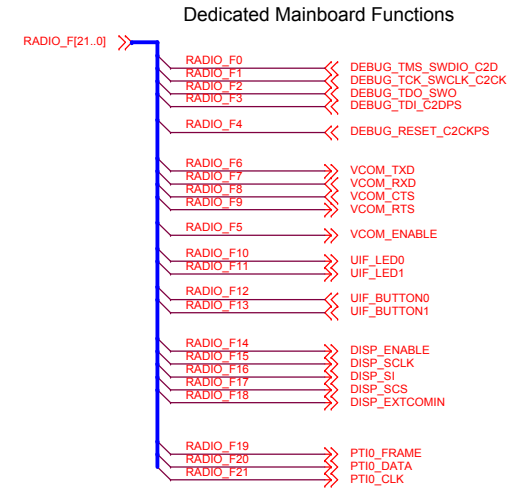
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		Wireless Pro Kit Mainboard	
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		Title Page	
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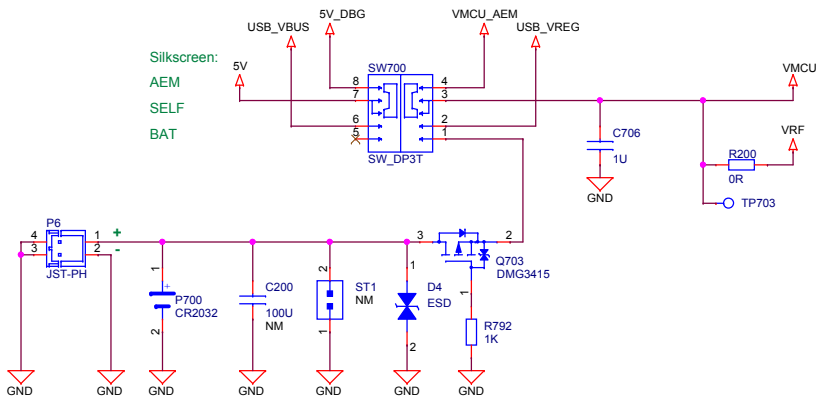
Radio Board Socket



Radio Board Signal Assignments

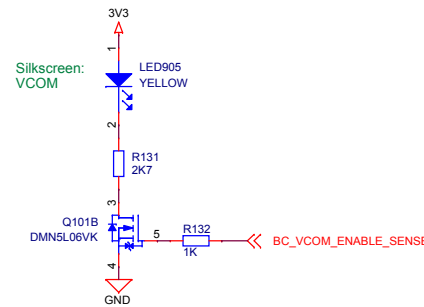


Radio Board Power Selection Switch



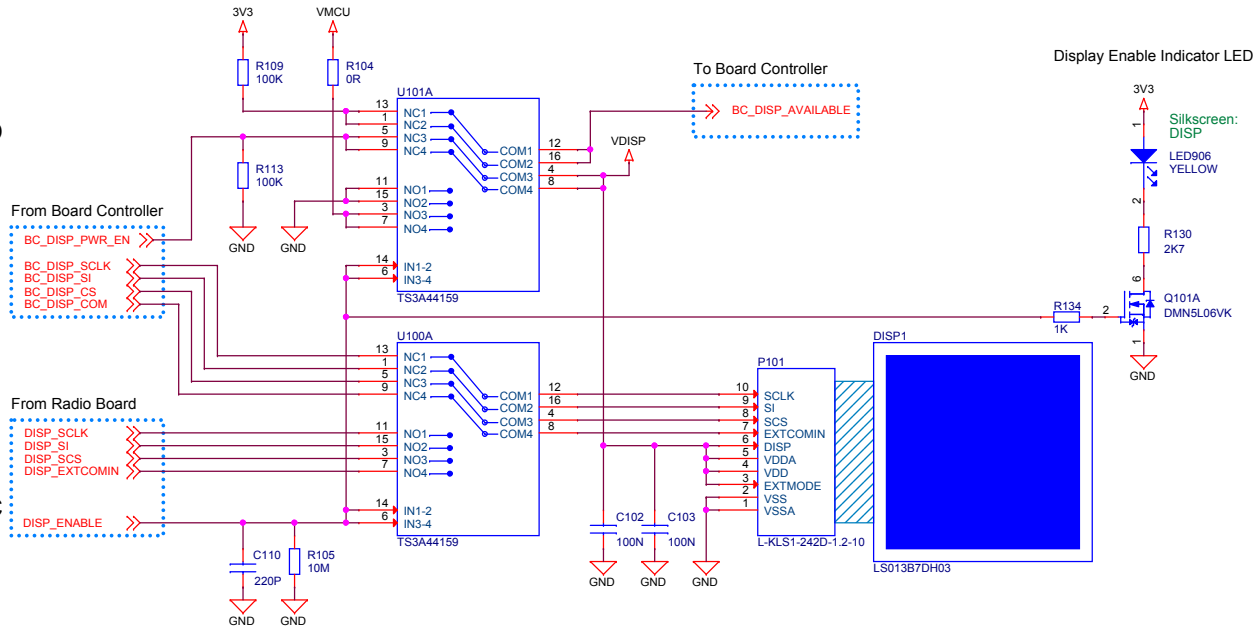
Switch Pos.	VMCU Source	5V Source
AEM	AEM output	5V_DBG from debug USB
SELF	USB_VREG pin on radio board	USB_VBUS pin on radio board
BAT	Coin cell battery, P6 or ST1	Not connected

VCOM Enable Indicator LED



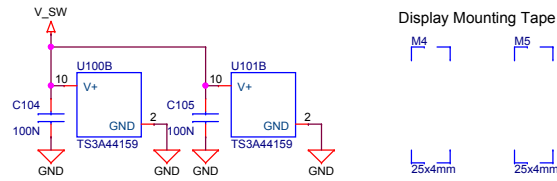
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		Wireless Pro Kit Mainboard	
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		Radio Board Interface	
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Memory LCD-TFT Display & Multiplexer

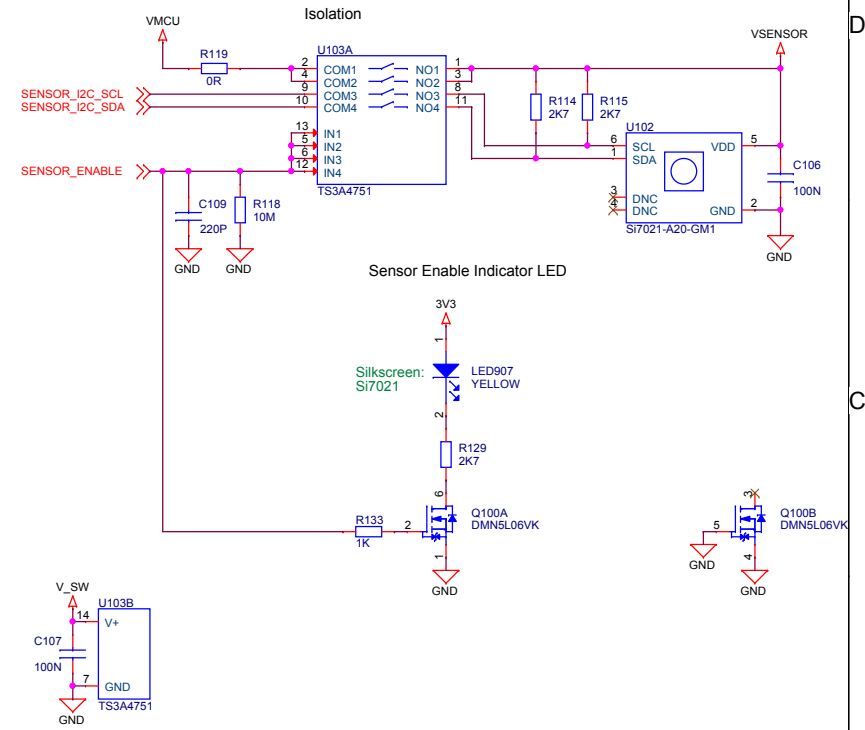


DISP_ENABLE	Display Controller	VDISP source	BC_DISP_AVAILABLE
1	Radio Board Control MCU	VMCU BC_DISP_PWR_EN	0
0			1

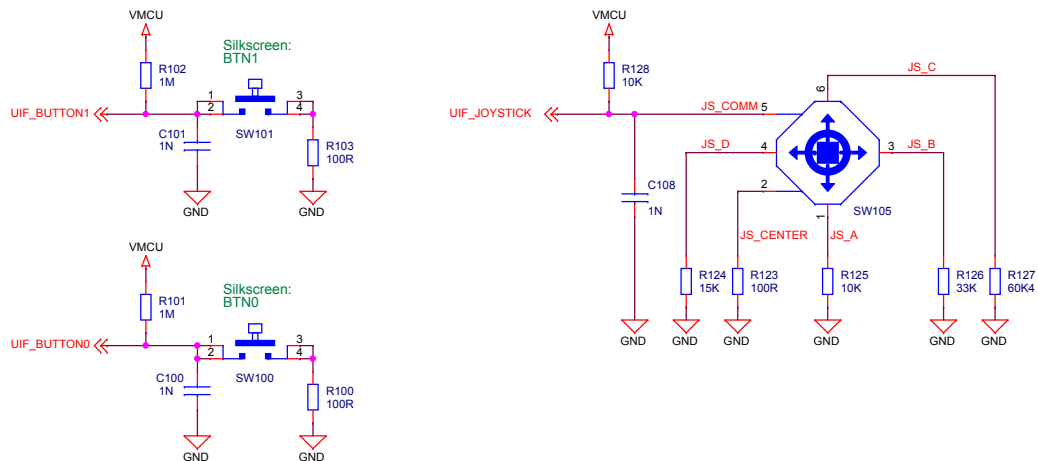
The radio board always controls ownership of the display using the DISP_ENABLE signal



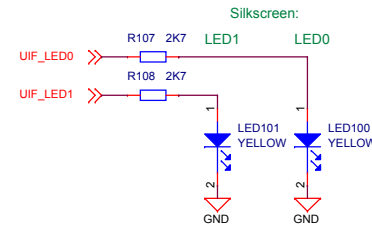
Relative Humidity & Temperature Sensor



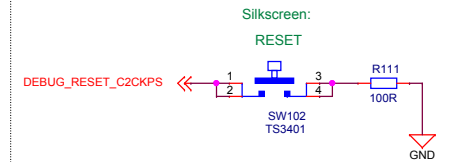
User Buttons & Joystick



User LEDs

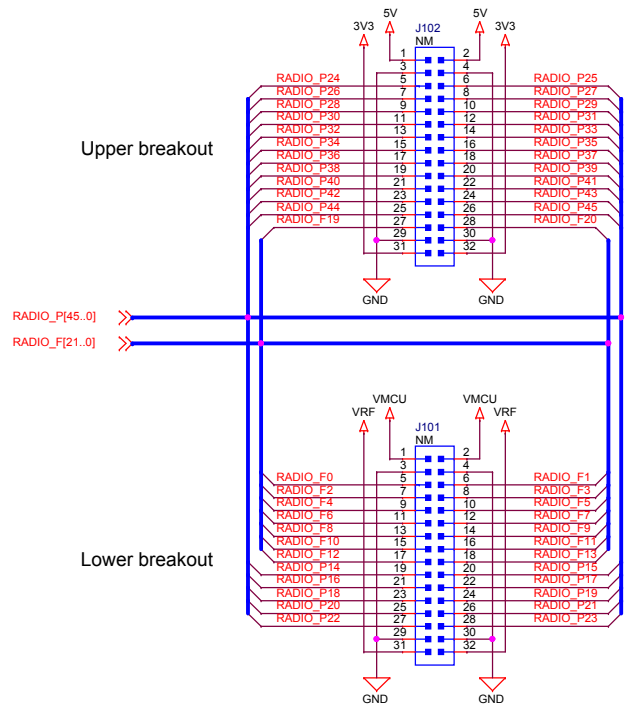


Reset Pushbutton

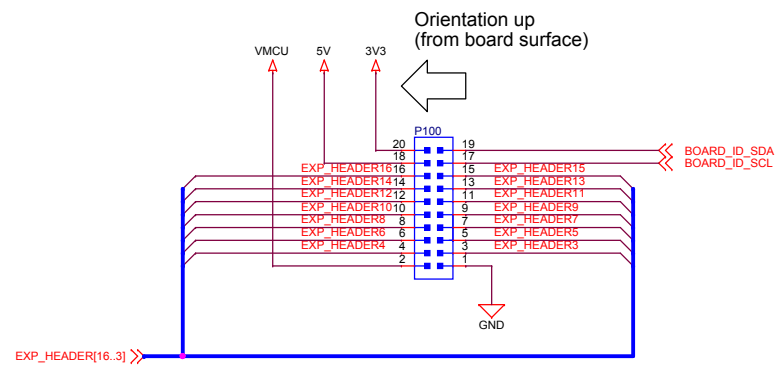


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Radio Board Breakout Connections




EXP Header

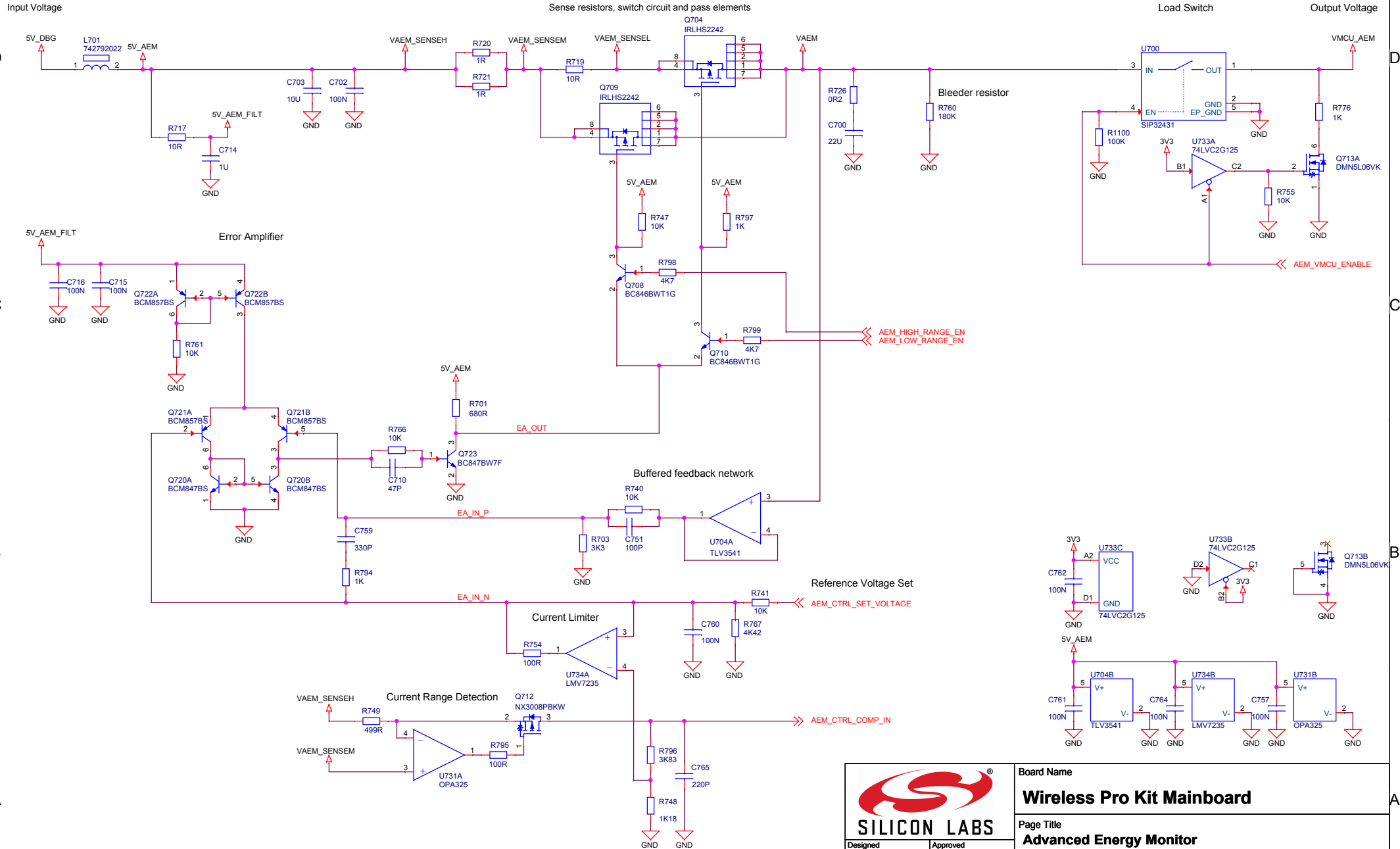



EXP header functionality

1	GND
3	
5	
7	
9	
11	
13	
15	I2C_SCL
17	Reserved for EXP Board ID
19	Reserved for EXP Board ID
2	VMCU
4	SPI_MOSI
6	SPI_MISO
8	SPI_SCLK
10	SPI_CS
12	UART_TX
14	UART_RX
16	I2C_SDA
18	5V
20	3V3

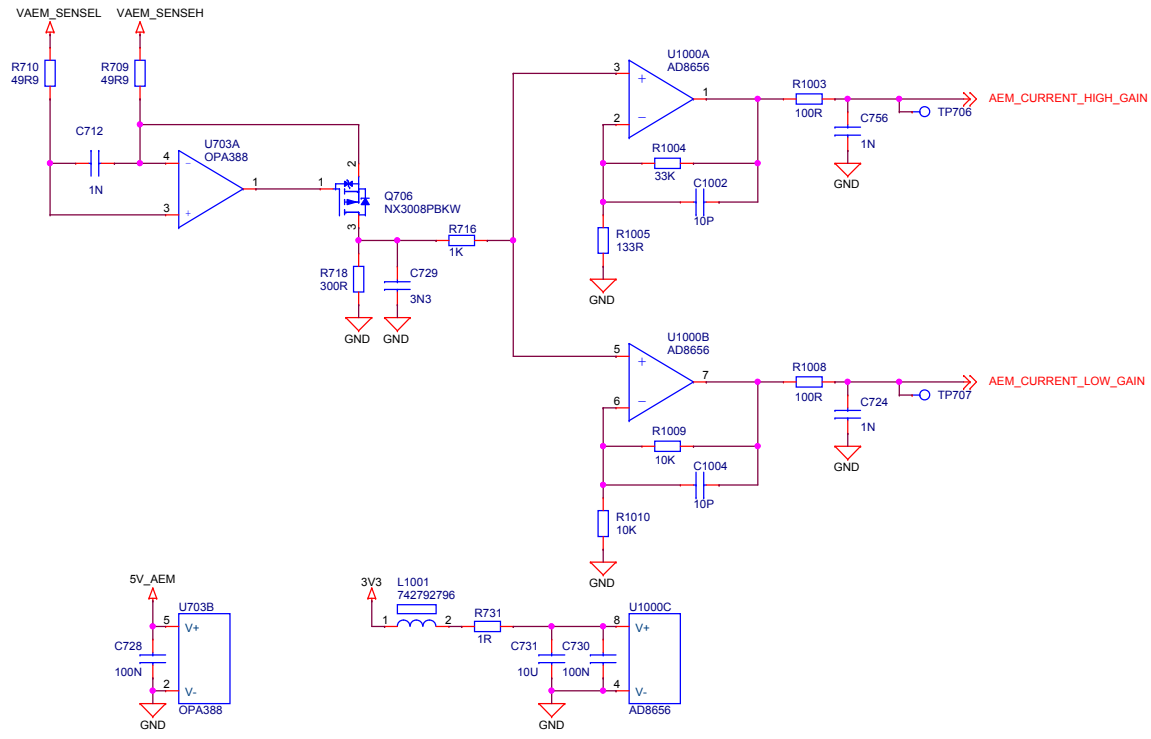
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	Page Title EXP Header & Breakout Signals	
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Advanced Energy Monitor

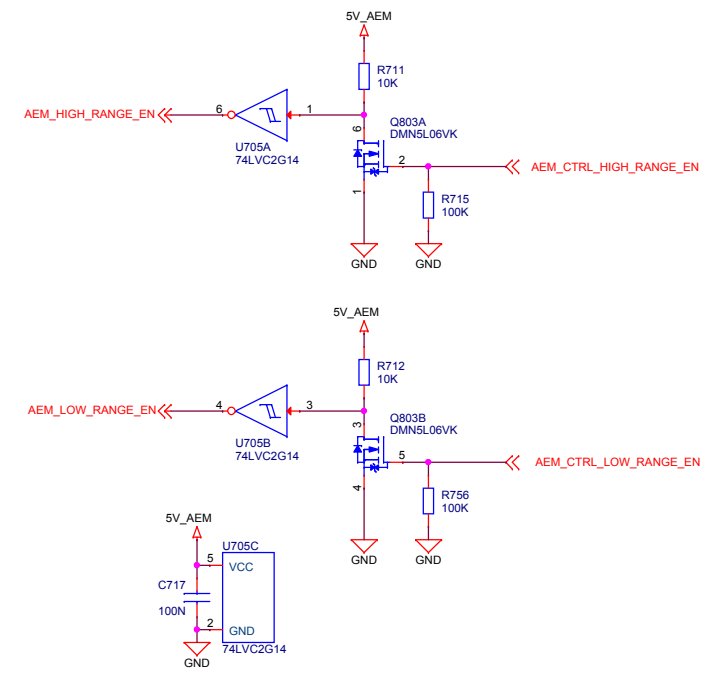


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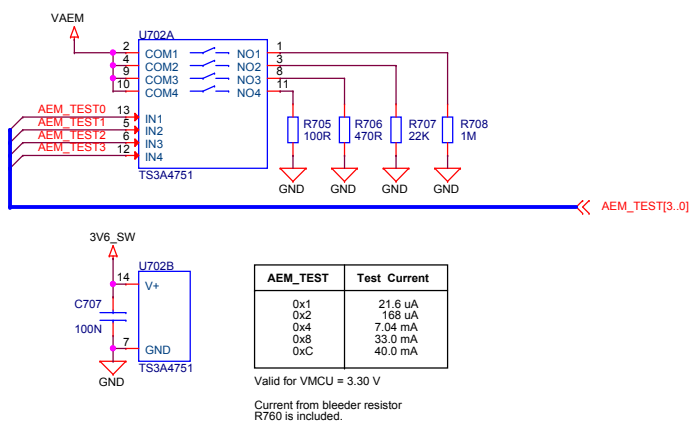
AEM Current Sense



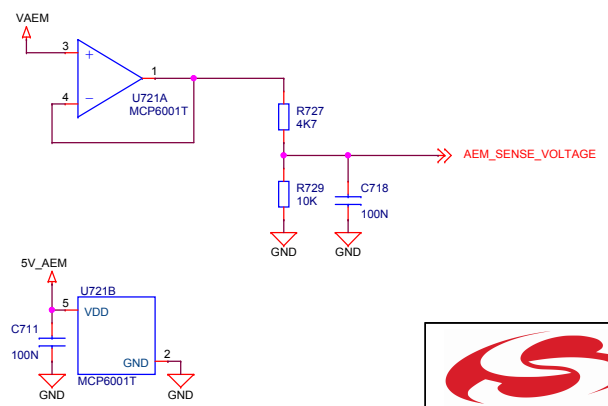
AEM Range Control



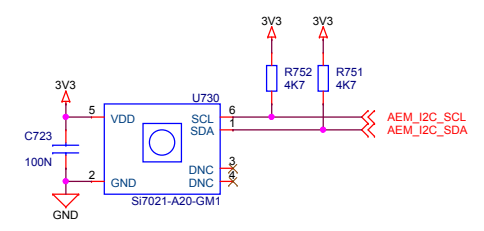
AEM Test Circuit



AEM Voltage Sense

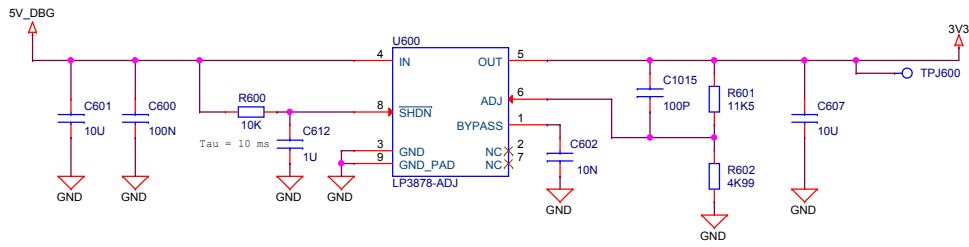


AEM Temperature Sensor



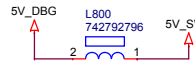
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		Wireless Pro Kit Mainboard	
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3V3 Regulator

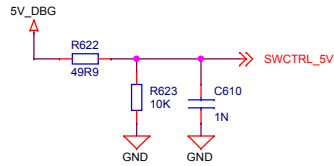


5V Misc.

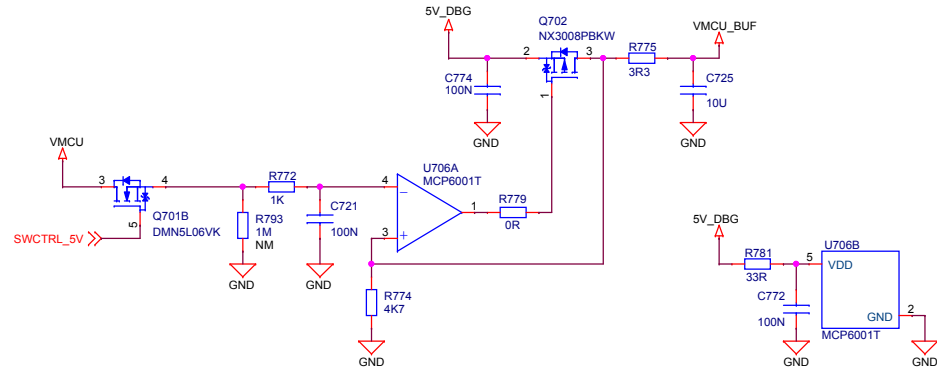
Supply for Isolation Switches



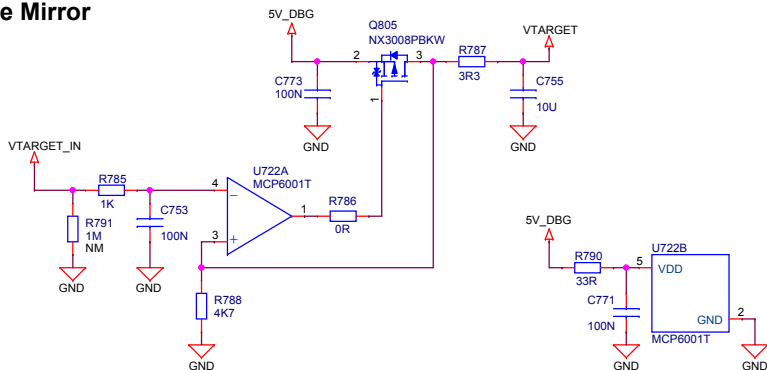
Control Signal for Isolation Switches



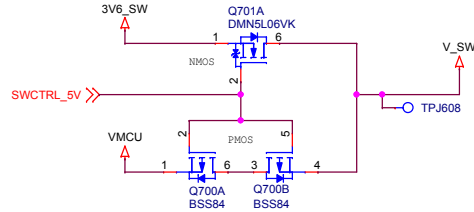
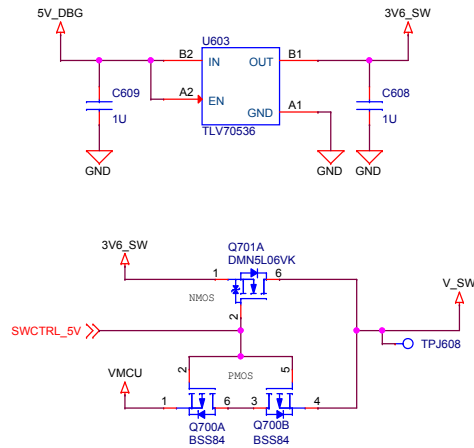
VMCU Voltage Mirror



VTarget Voltage Mirror



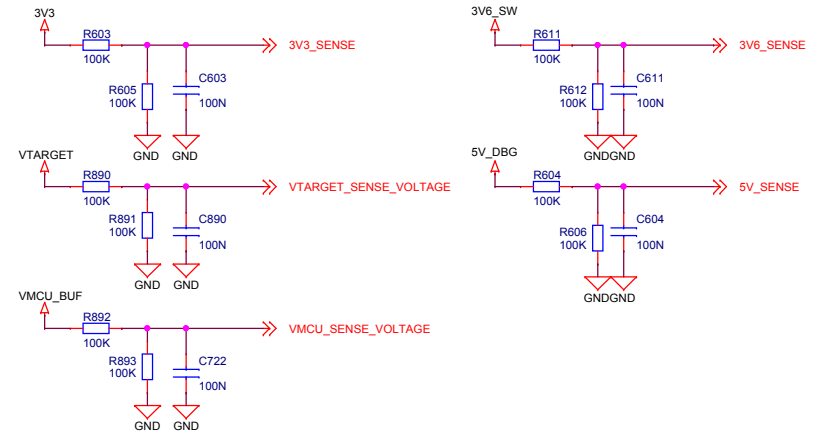
Power Supply for Isolation Switches



J-Link USB Cable	Q700 State	Q701A 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.

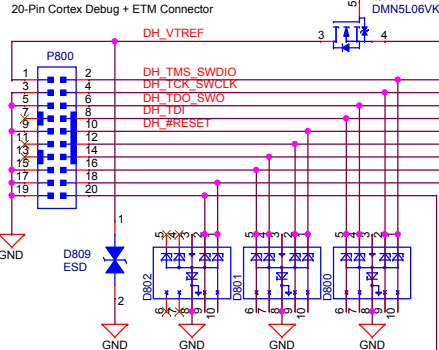
Voltage Sensing



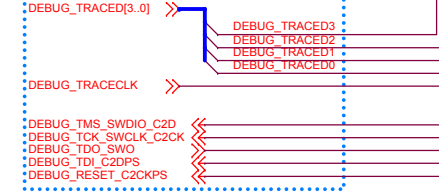
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		Voltage Regulators	
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Debug Interface

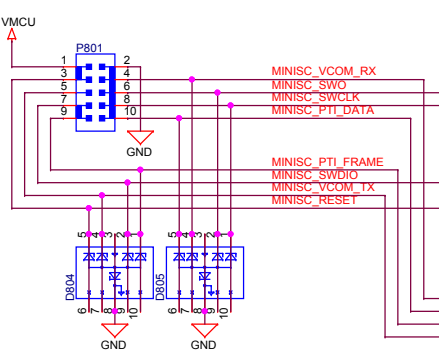
Debug Connector



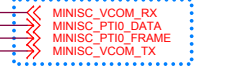
To Radio Board Socket (p.2)



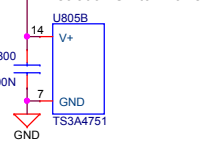
Mini Simplicity Connector



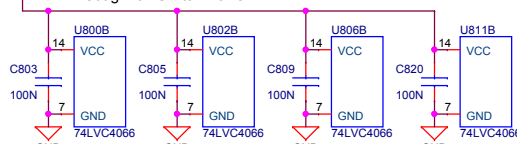
Mini Simplicity PTI & VCOM (p.9)



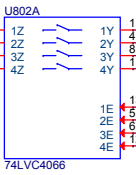
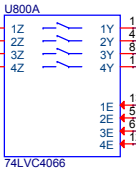
Isolation Switch Power



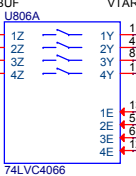
Debug Mux Switch Power



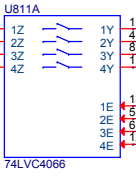
Debug Mux



Debug Mux



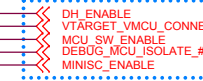
Debug Mux



Debug Signals



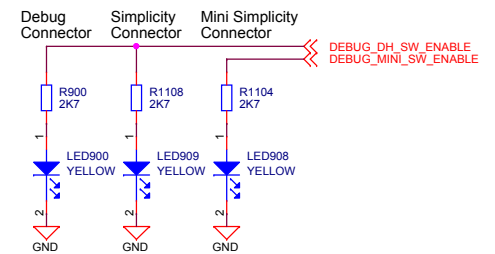
Debug Mux Control Signals (p. 10)




Debug Mode	DH_ENABLE	MCU_SW_ENABLE	MINI_SW_ENABLE
MCU	0	1	0
Debug Out	1	0	0
Mini Out	0	0	1
Debug In	1	1	0
Debug Off	0	0	0

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

Indicator LEDs





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Debug Interface

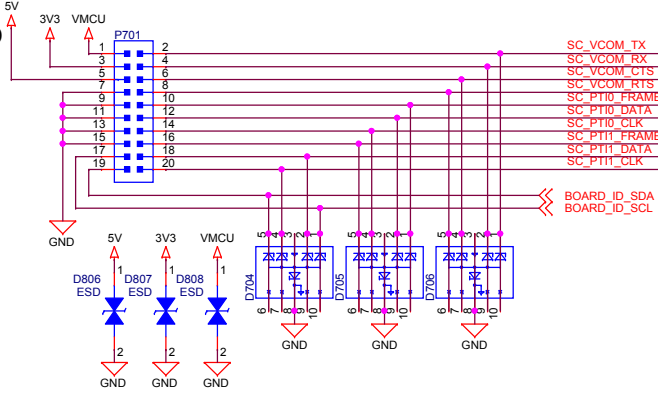
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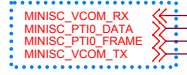
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Simplicity Interface

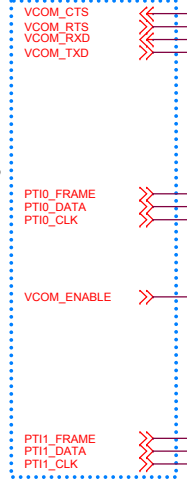
Simplicity Connector



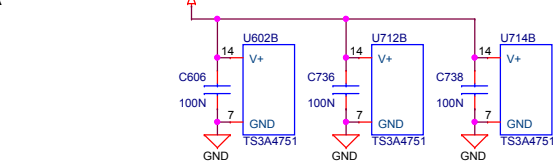
Mini Simplicity Connector (p.8)



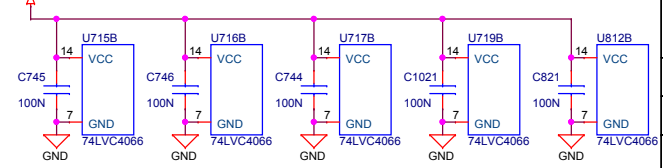
To Radio Board Socket (p.2)



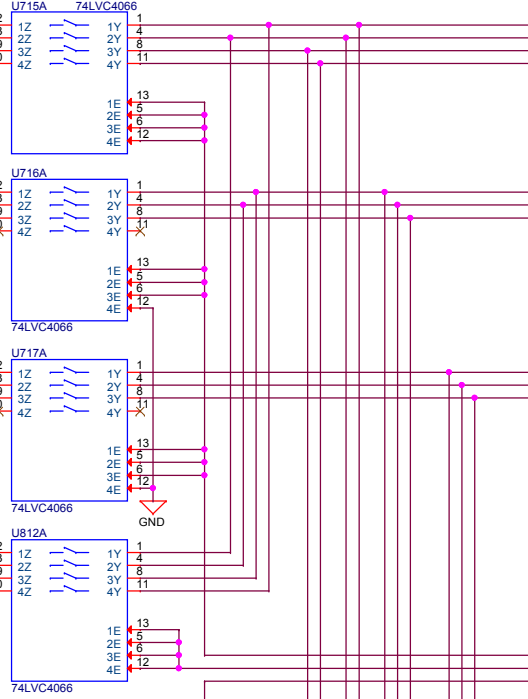
Isolation Switch Power



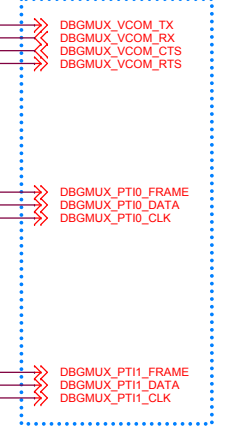
Debug Mux Power



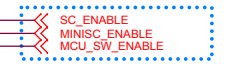
Debug Mux




VCOM & PTI Signals (p. 10)



Debug Mux Control Signals (p.10)



Debug Mode	SC_ENABLE	MCU_SW_ENABLE	MINI_SW_ENABLE
MCU	0	1	0
Debug Out	1	0	0
Mini Out	0	0	1
Debug In	1	1	0
Debug Off	0	0	0



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Simplicity Interface

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HEL

Approved
RGU

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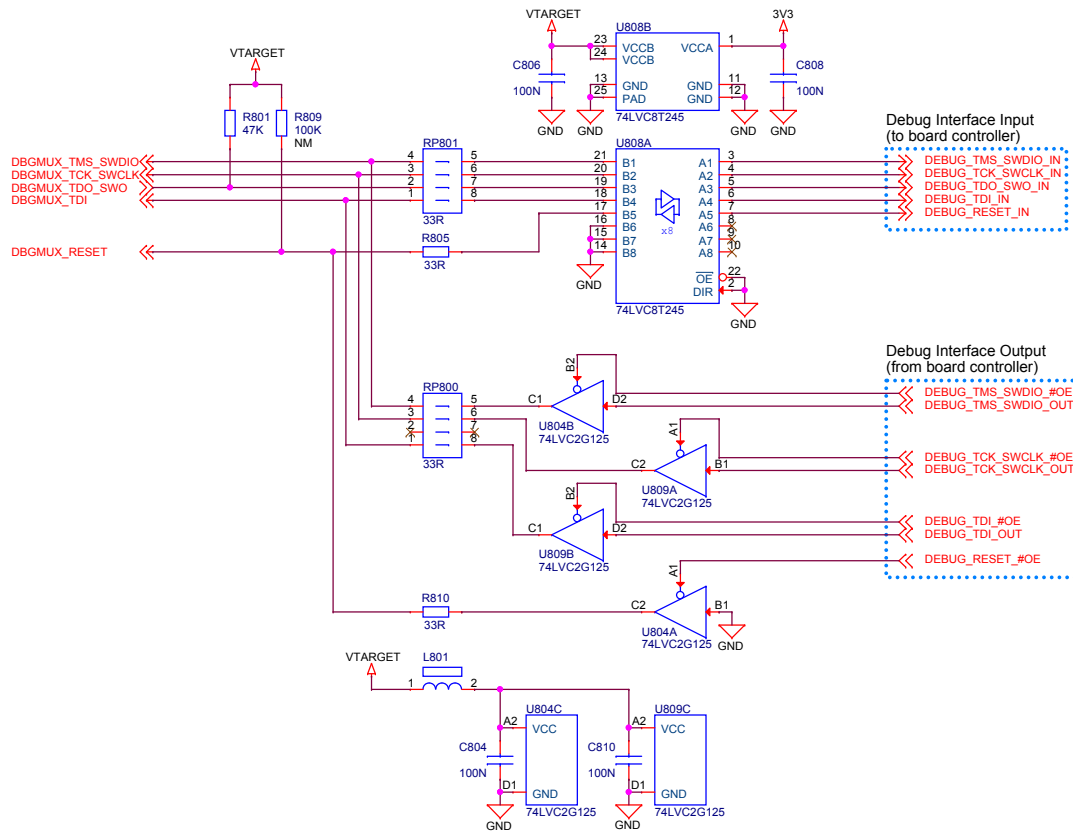
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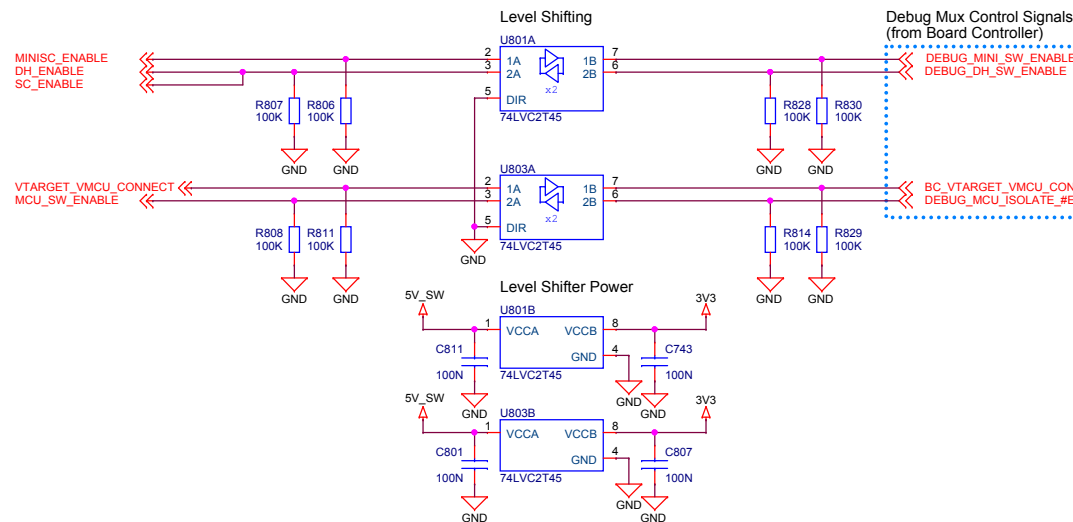
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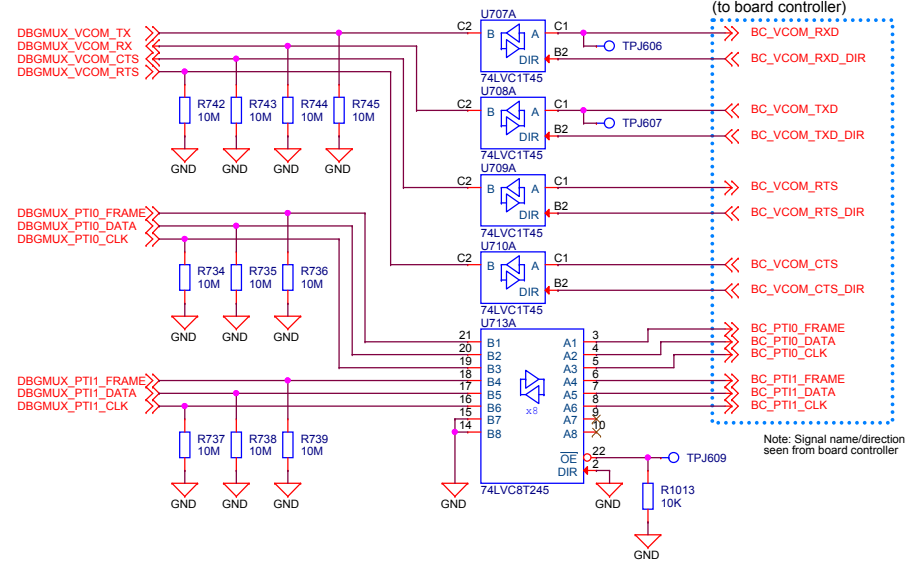
Debug Interface Level Shifting



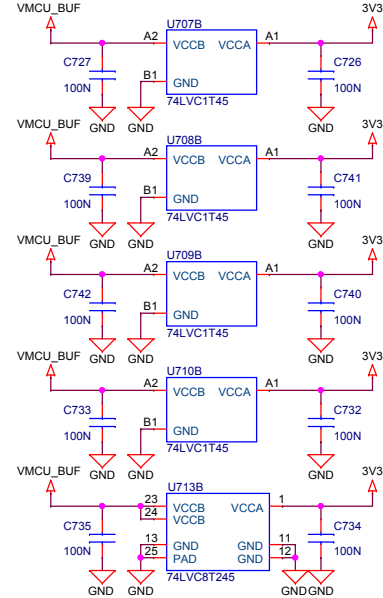
Debug Mux Control Signal Level Shifting



Simplicity Interface Level Shifting




Level Shifter Power



Debug Mode	BC_VCOM_TX_DIR	BC_VCOM_RX_DIR
MCU	1	0
Debug Out	1	0
Mini Out	1	0
Debug In	0	0
Debug Off	0	0

Debug Mode	BC_VCOM_RTS_DIR	BC_VCOM_CTS_DIR
MCU	1	0
Debug Out	1	0
Mini Out	0	0
Debug In	0	0
Debug Off	0	0



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Debug Mux Level Shifting

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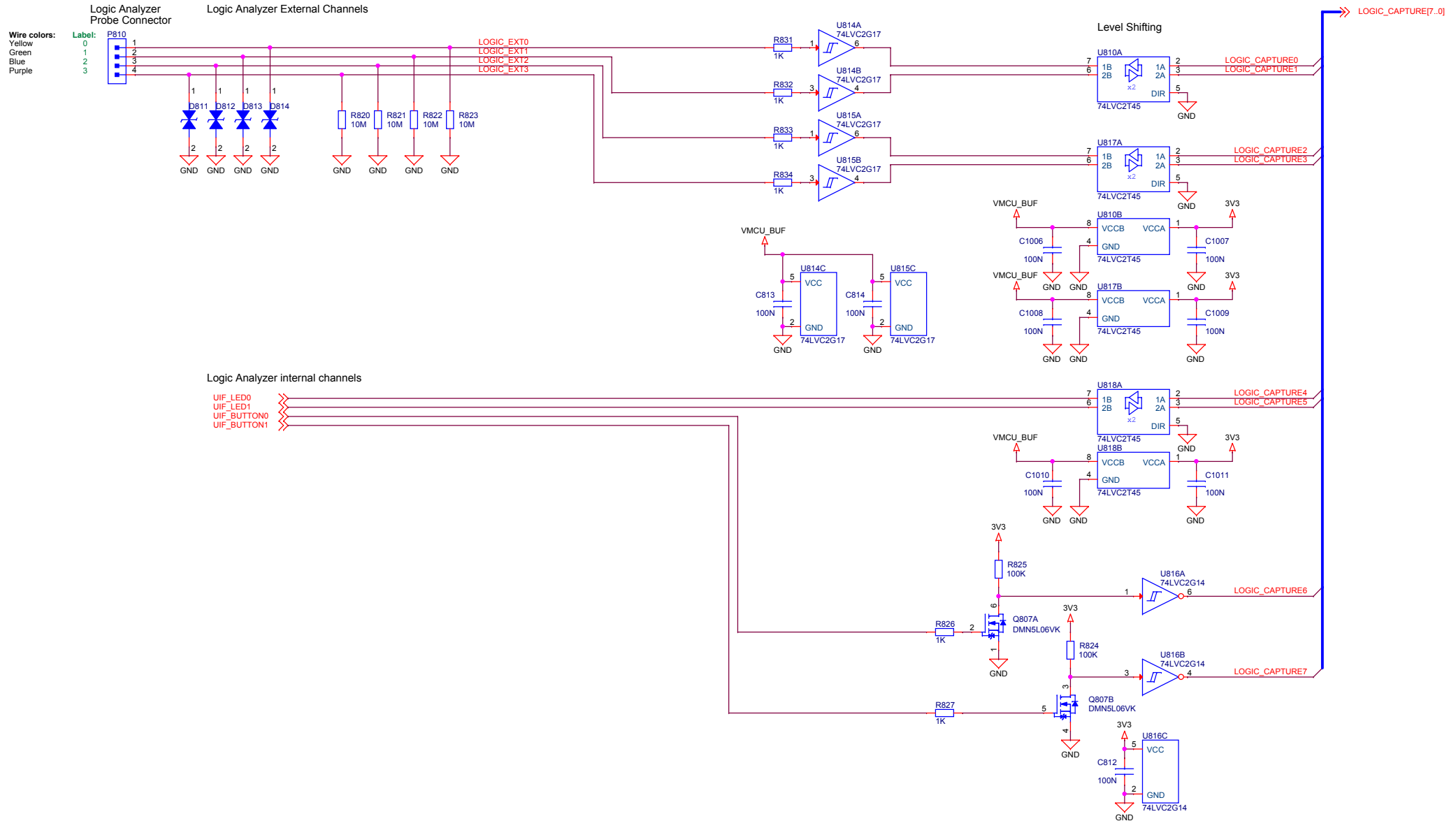
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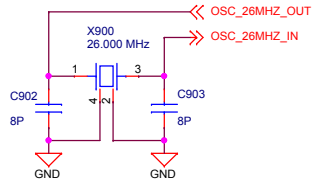
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Logic Analyzer Front End

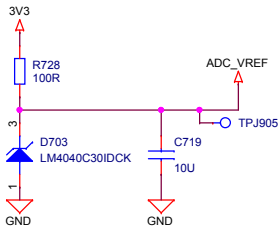


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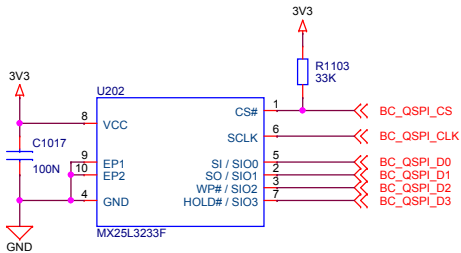
Board Controller Crystal



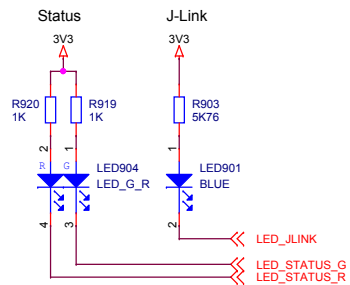
Board Controller ADC Reference



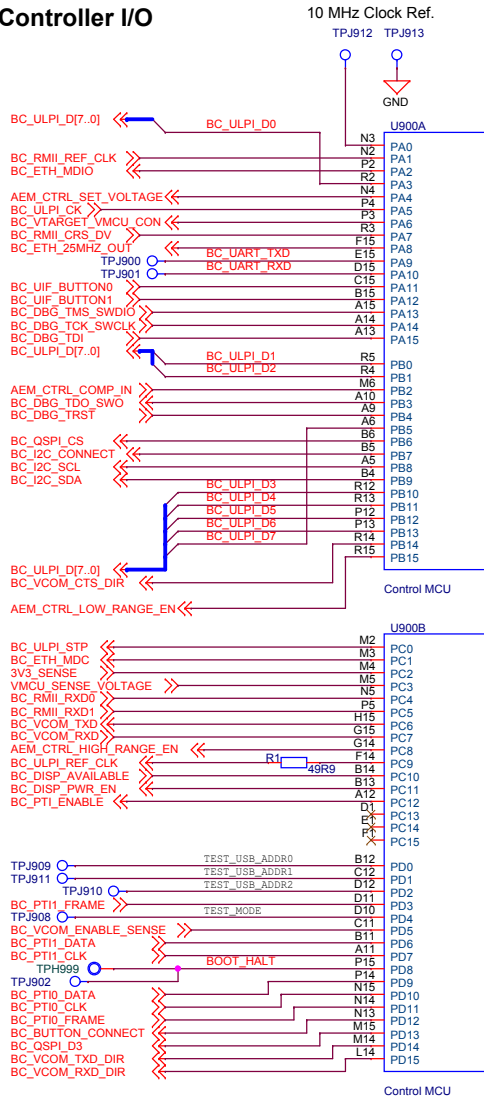
Board Controller Serial Flash Memory



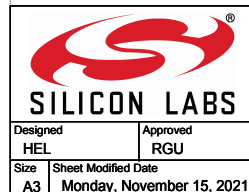
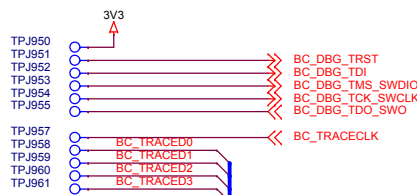
Board Controller Indicator LEDs



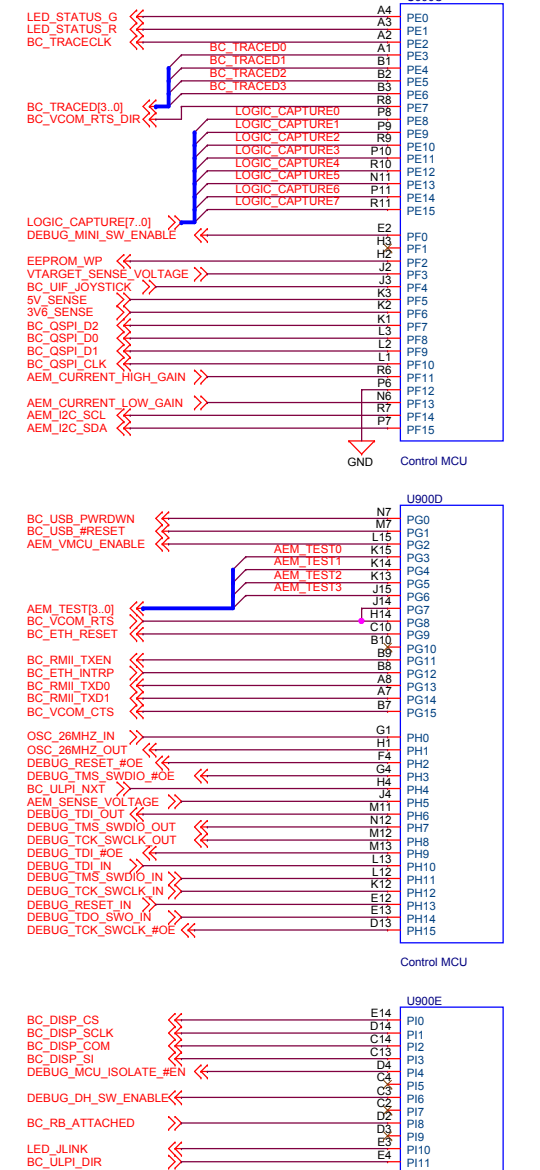
Board Controller I/O



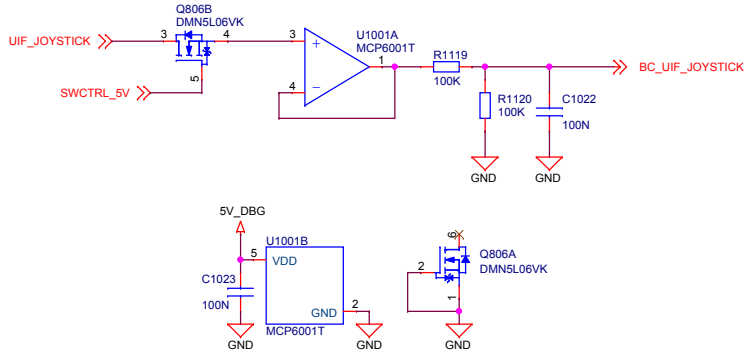
Board Controller Test Points



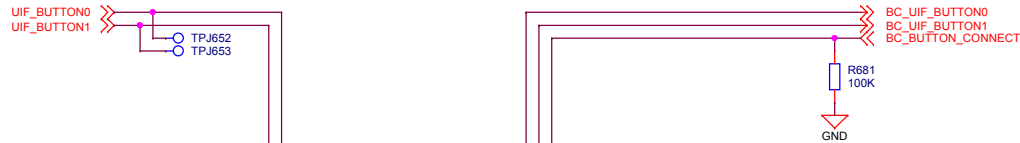
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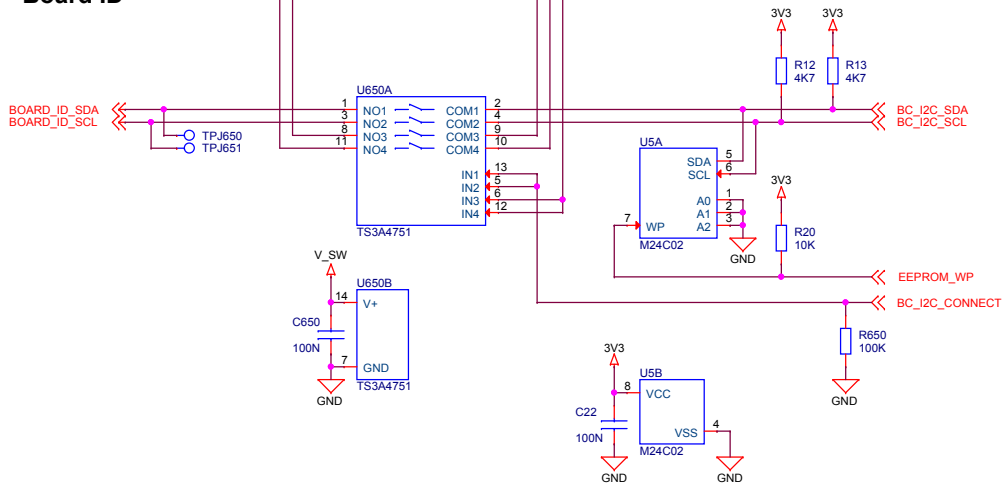
Board Controller Joystick Connection



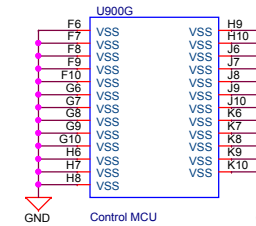
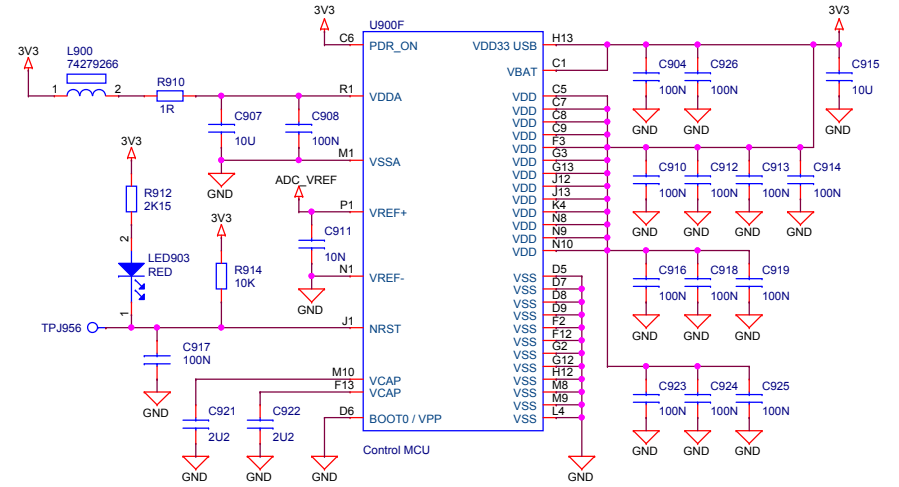
Board Controller Button Connection



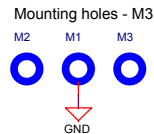
Board ID




Board Controller Power & Decoupling

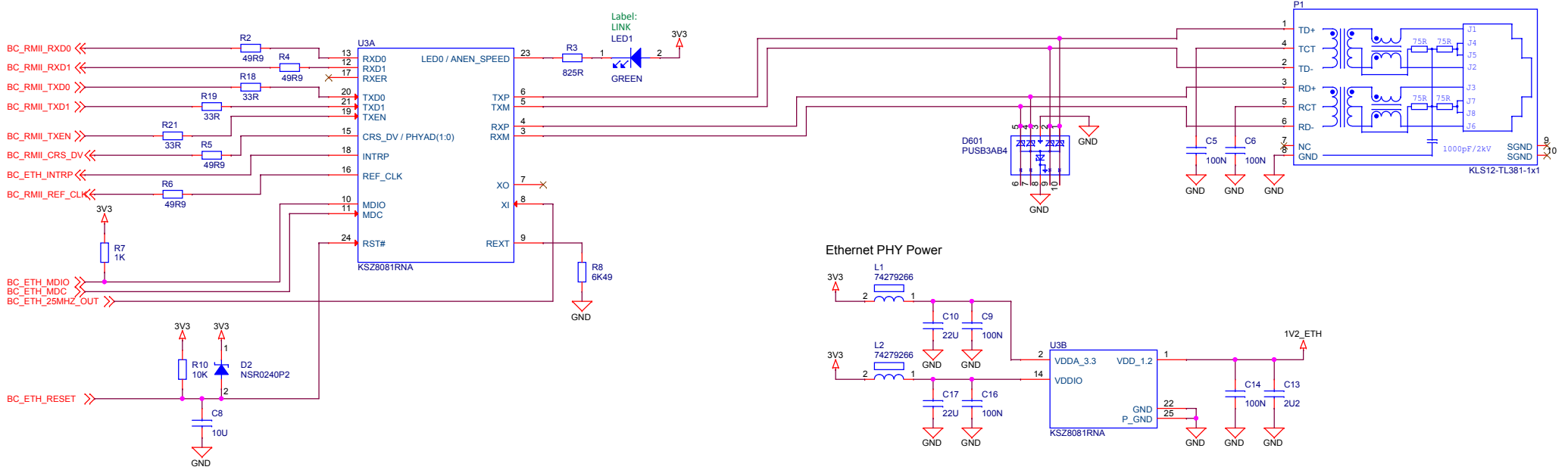


Mounting Holes

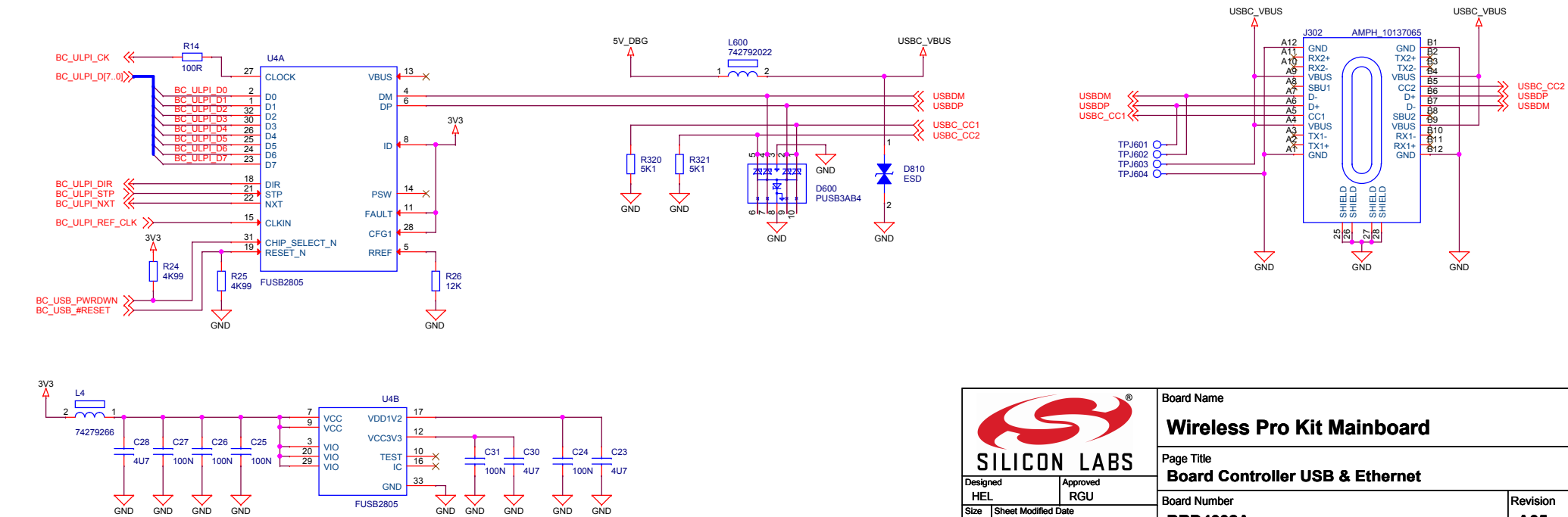


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		Wireless Pro Kit Mainboard	
Designed HEL		Page Title	
		Board Controller Power & Misc	
Size A3		Board Number	
		BRD4002A	
Sheet Modified Date Monday, November 15, 2021		Revision	
		A05	
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10/100 Mbit Ethernet PHY



USB High Speed



 SILICON LABS		Board Name	
		Wireless Pro Kit Mainboard	
Designed HEL		Page Title	
		Board Controller USB & Ethernet	
Size A3		Board Number	
		BRD4002A	
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