

A

B

C

D

1

1

2

2

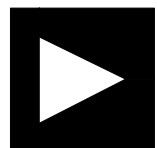
3

3

4

4

# ADSP-SC589 EZ-Board Schematic



**ANALOG  
DEVICES**

20 Cotton Road  
Nashua, NH 03063  
PH: 1-800-ANALOGD

Title ADSP-SC589 EZ-Board  
Title Block

Size C	Board No. A0447-2013	Rev 1.1
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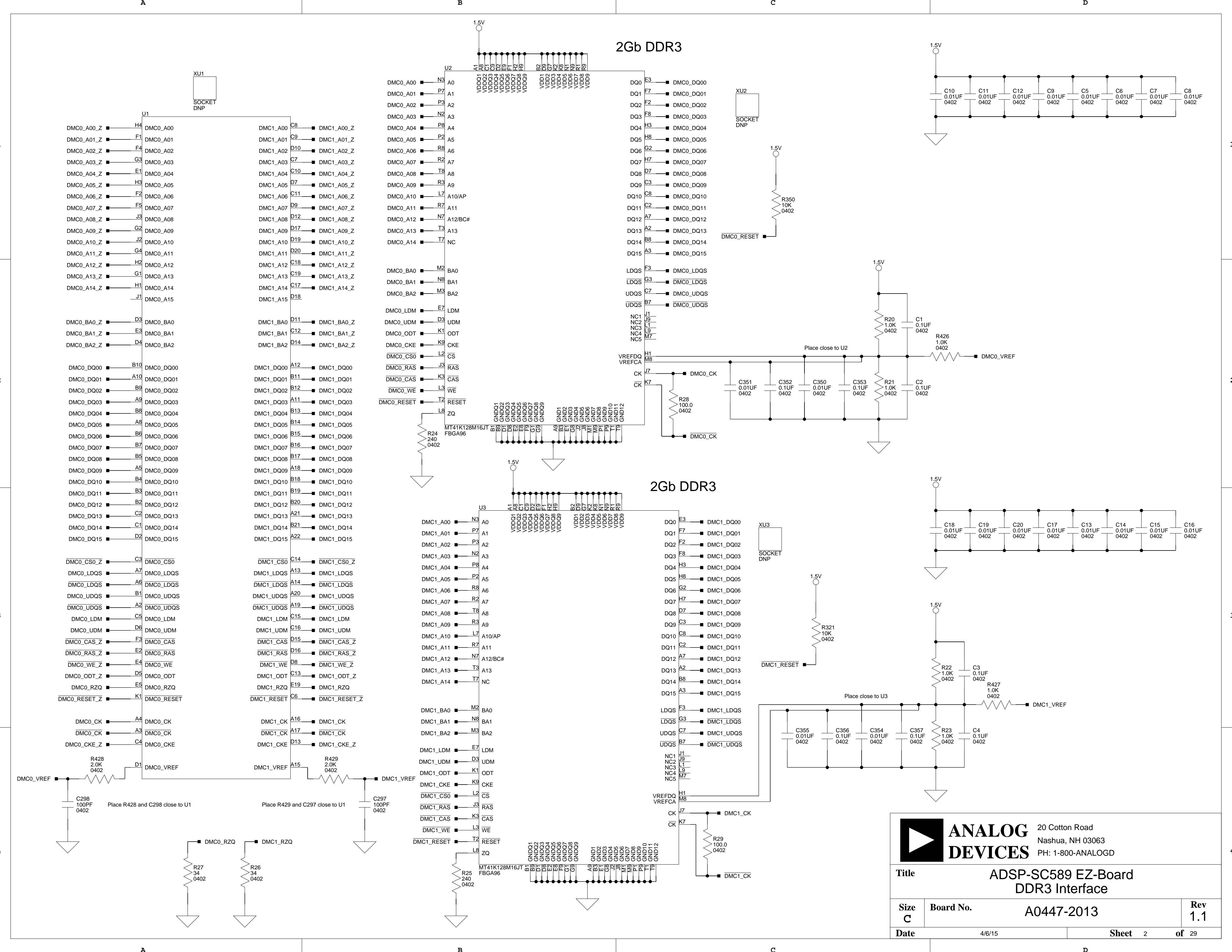
Date 4/6/15	Sheet 1	of 29
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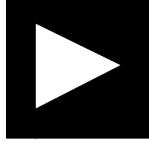
A

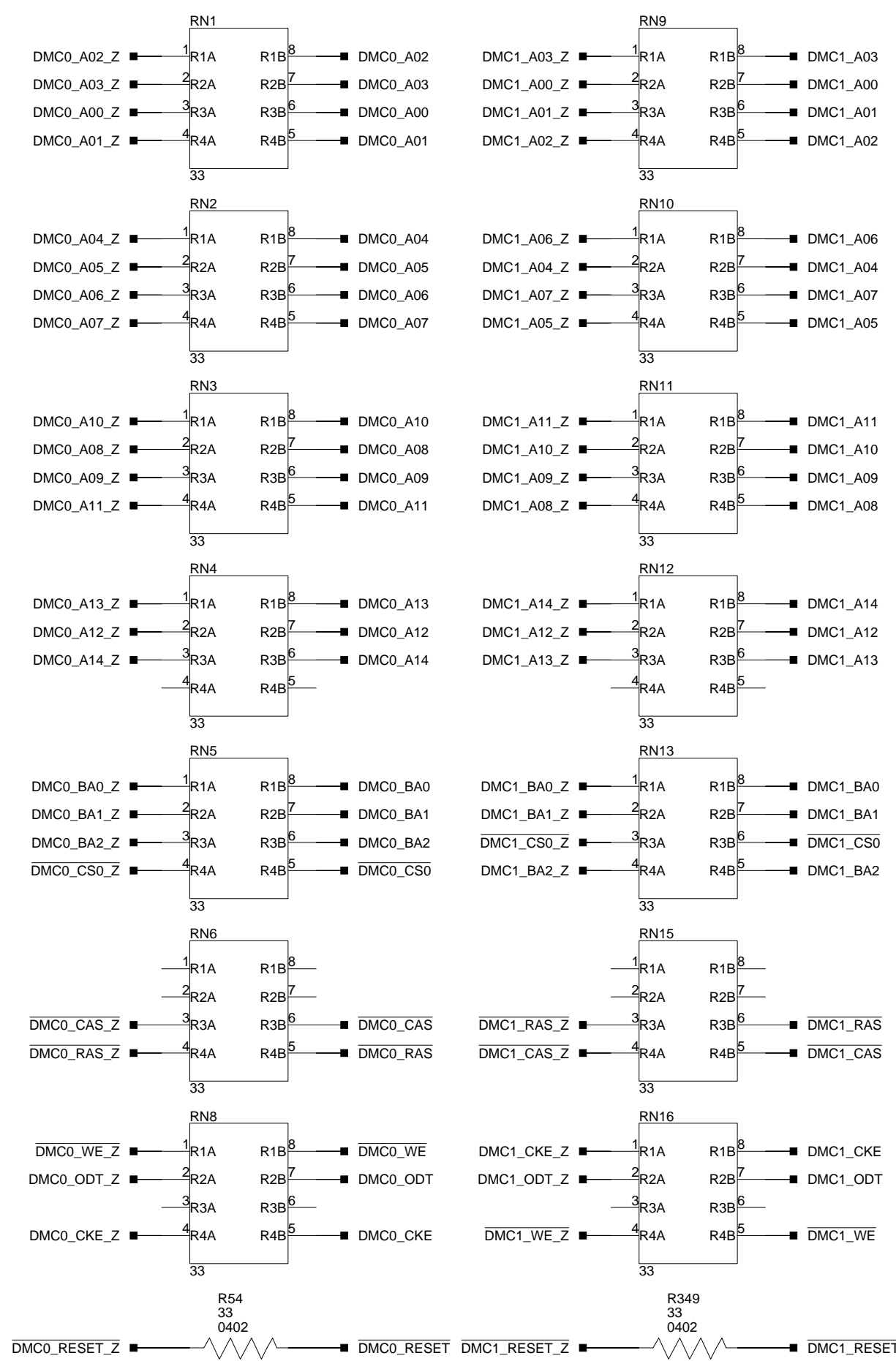
B

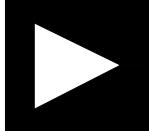
C

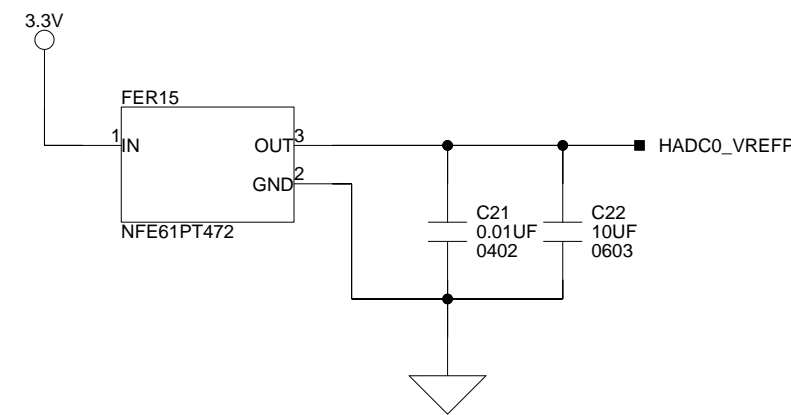
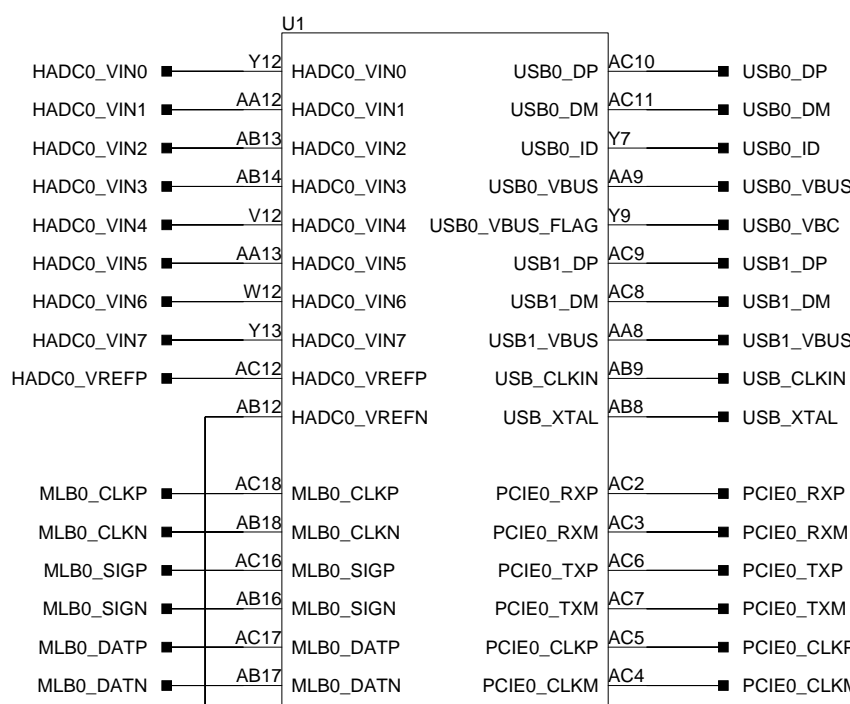
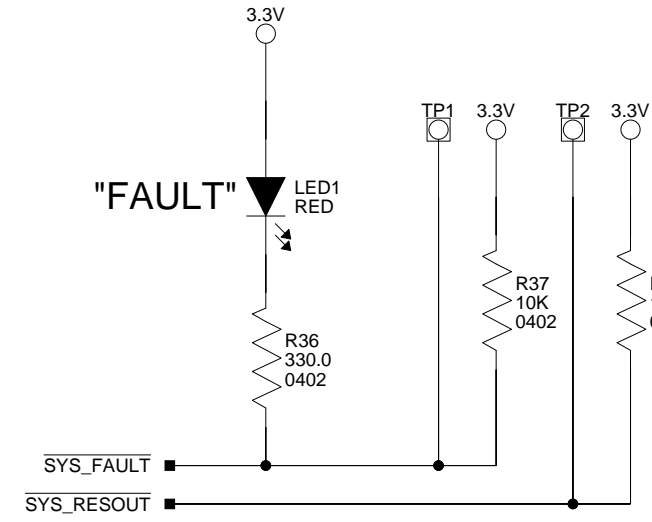
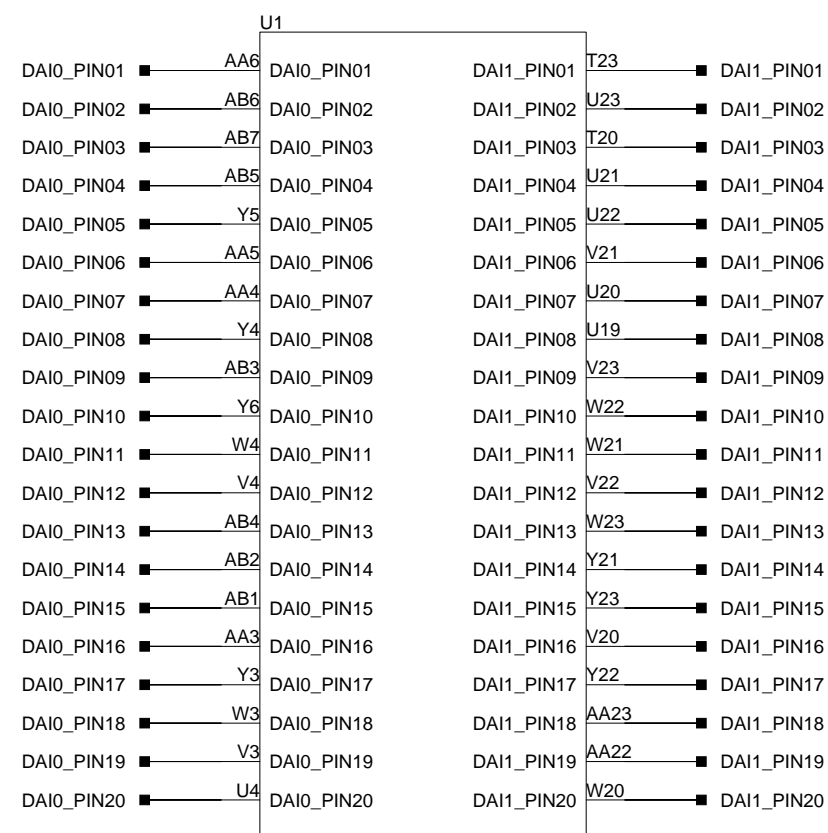
D



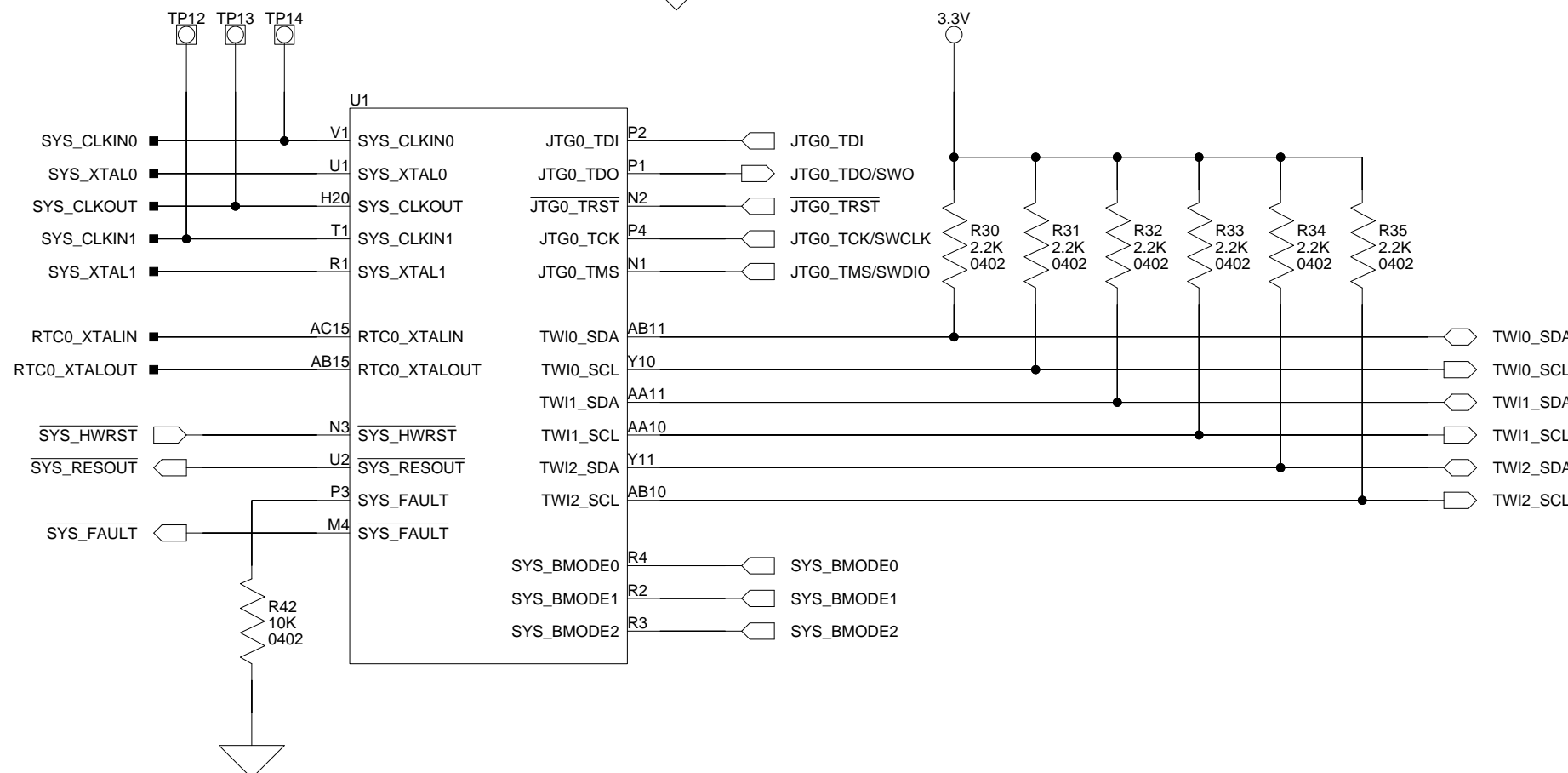
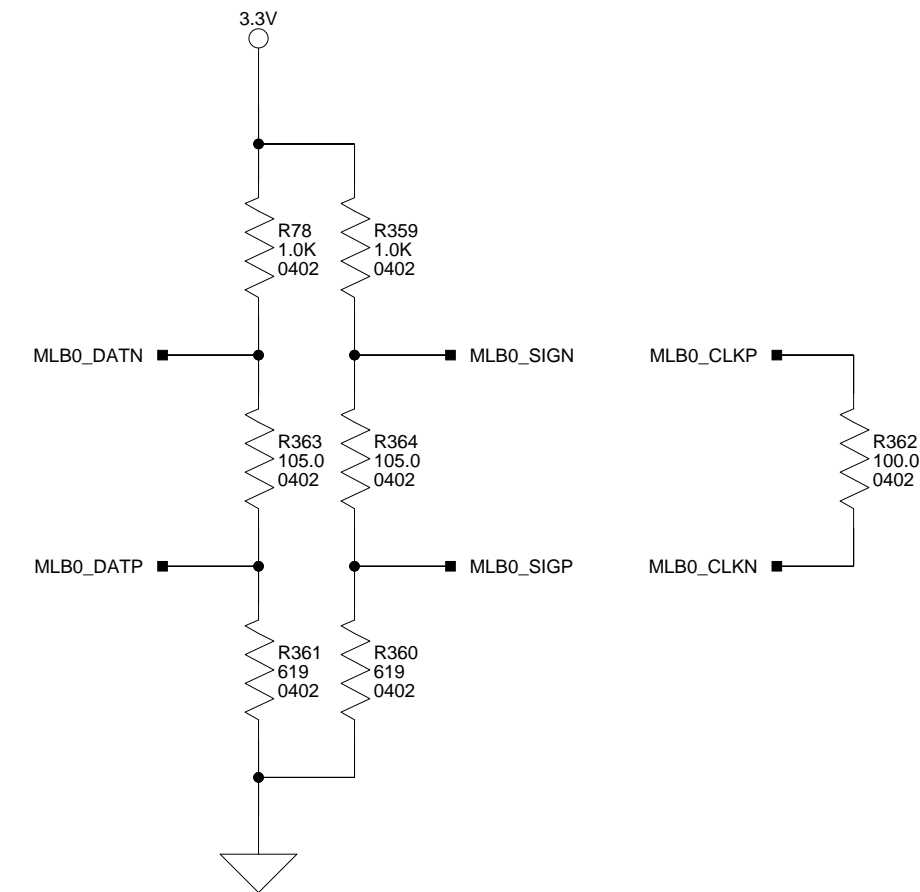
 <b>ANALOG DEVICES</b>		20 Cotton Road Nashua, NH 03063 PH: 1-800-ANALOGD	
		<b>Title</b> ADSP-SC589 EZ-Board DDR3 Interface	
<b>Size</b> C	<b>Board No.</b> A0447-2013	<b>Rev</b> 1.1	
<b>Date</b> 4/6/15	<b>Sheet</b> 2	<b>of</b> 29	



 <b>ANALOG DEVICES</b>		20 Cotton Road Nashua, NH 03063 PH: 1-800-ANALOGD	
		<b>Title</b> ADSP-SC589 EZ-Board DDR3 Terminators	
<b>Size C</b>	<b>Board No.</b> A0447-2013	<b>Rev</b> 1.1	
<b>Date</b> 4/6/15	<b>Sheet</b> 3		<b>of</b> 29



MLB signals need to be short and matched trace length.



		20 Cotton Road Nashua, NH 03063 PH: 1-800-ANALOGD	
		<b>Title</b> ADSP-SC589 EZ-Board Non-Mux Ports	
<b>Size C</b>	<b>Board No.</b> A0447-2013	<b>Rev</b> 1.1	
<b>Date</b> 4/6/15	<b>Sheet</b> 4		<b>of</b> 29

1

1

2

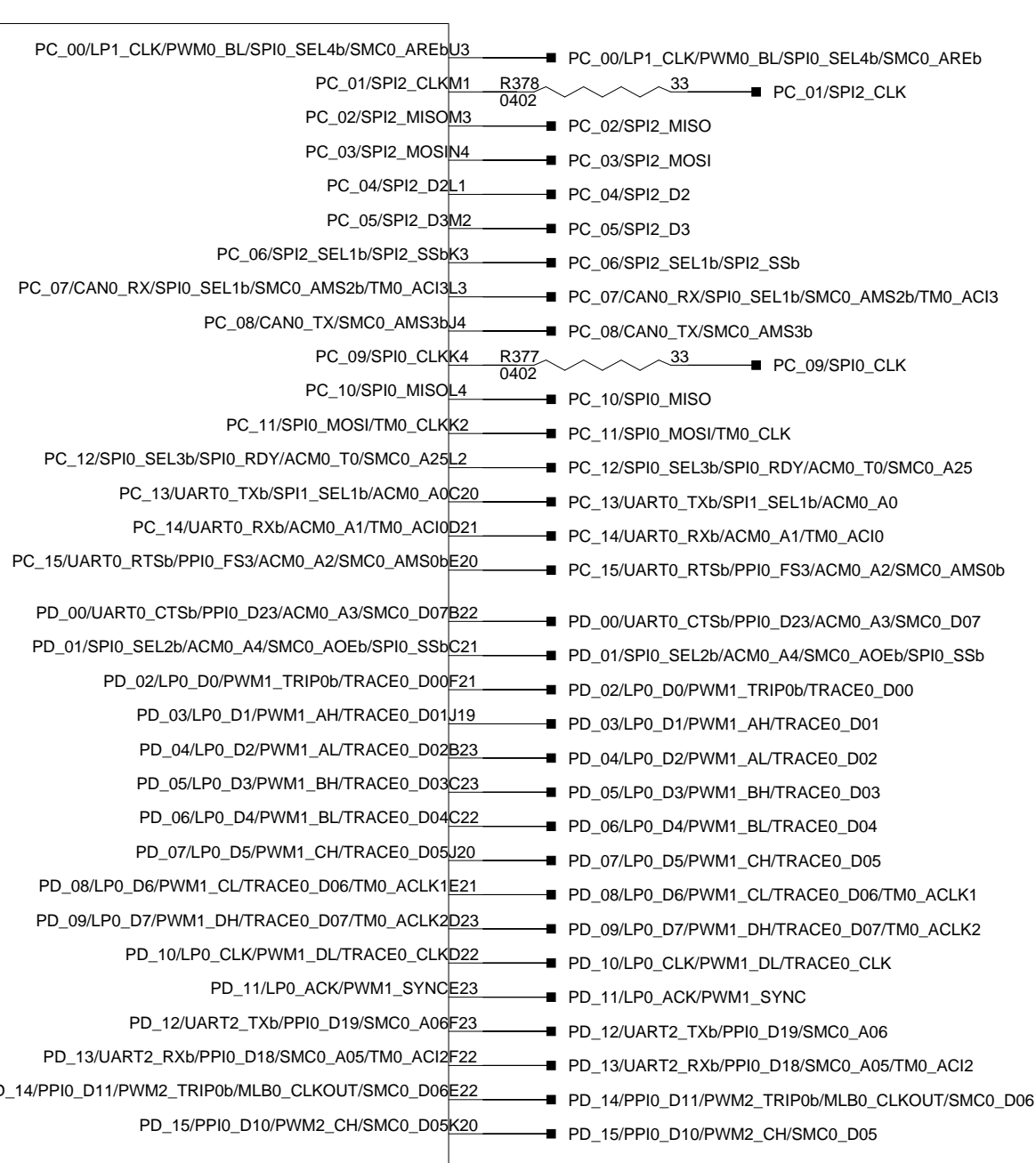
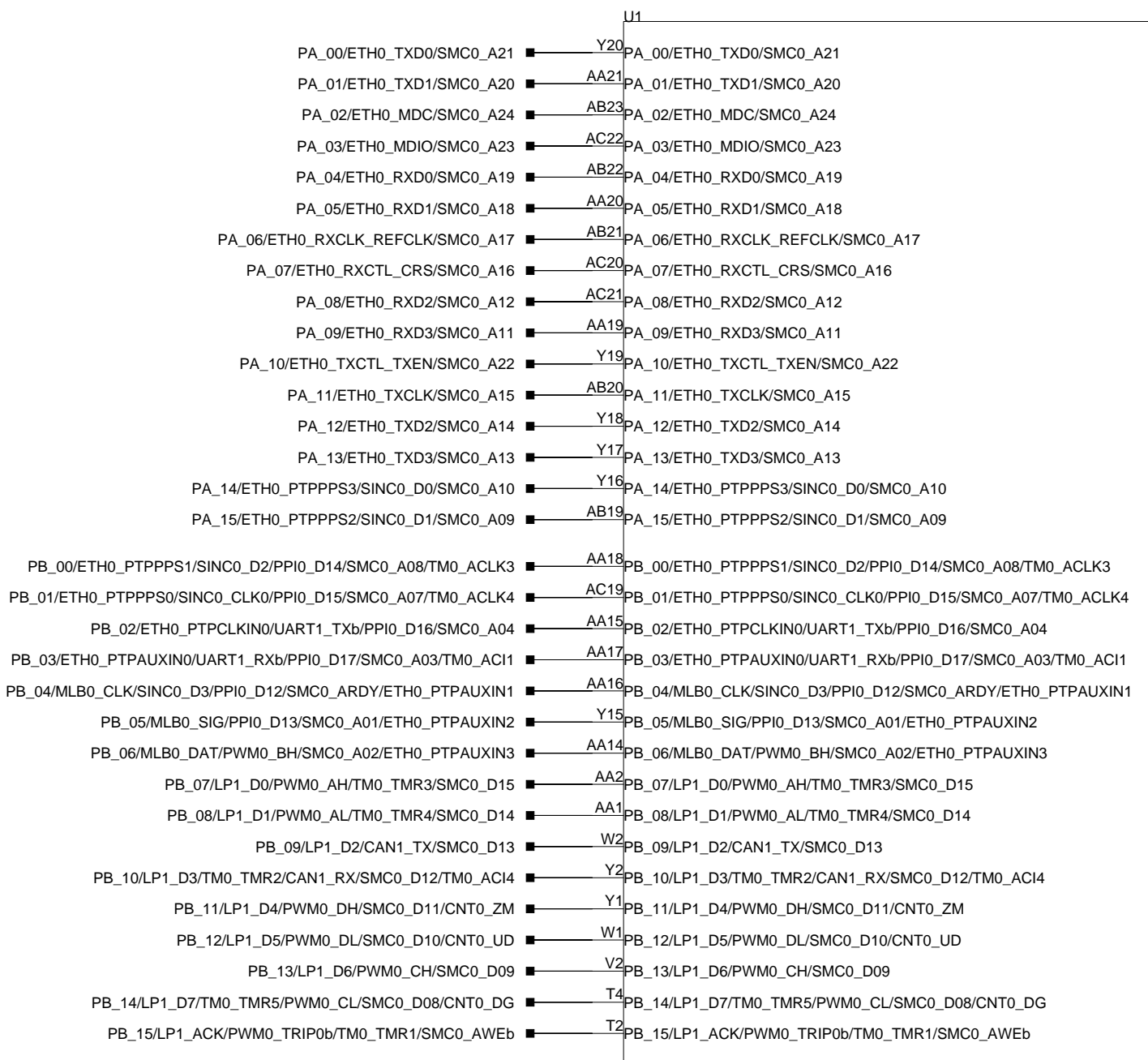
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3

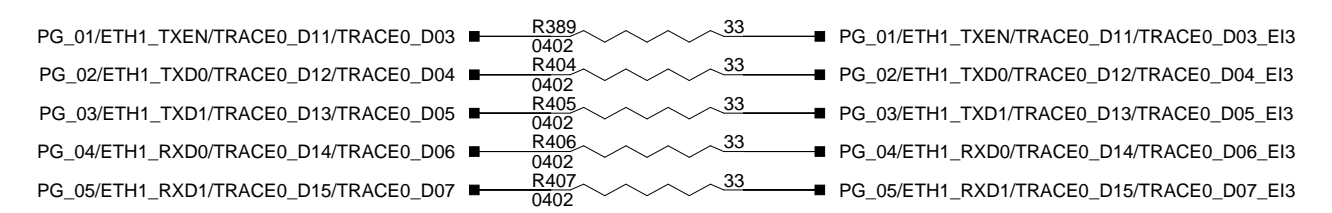
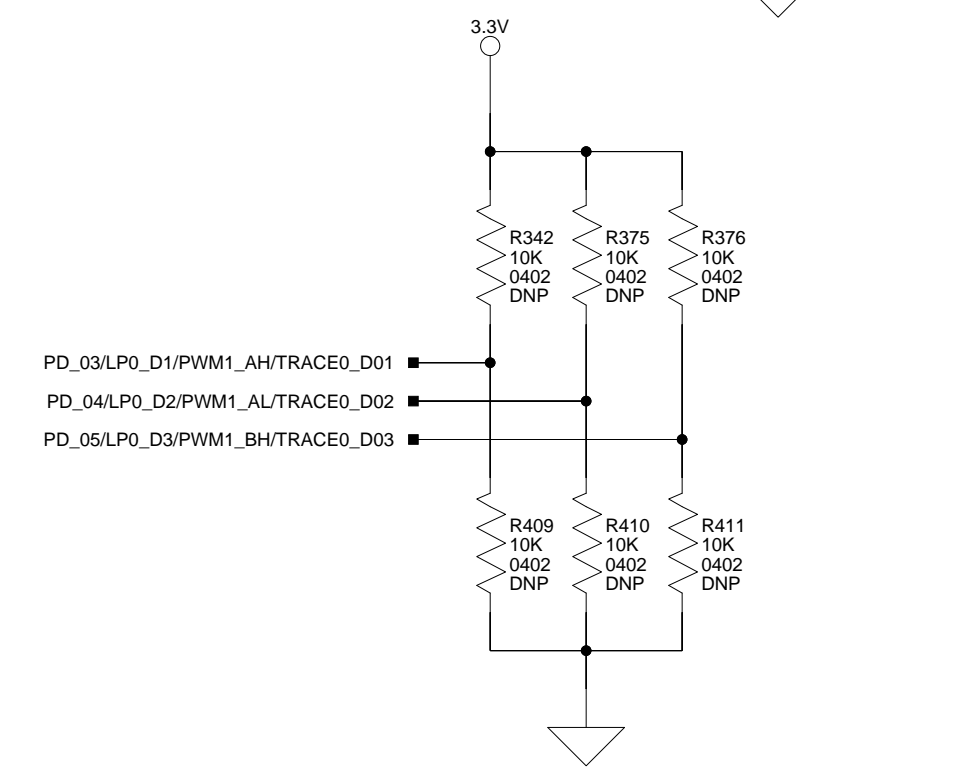
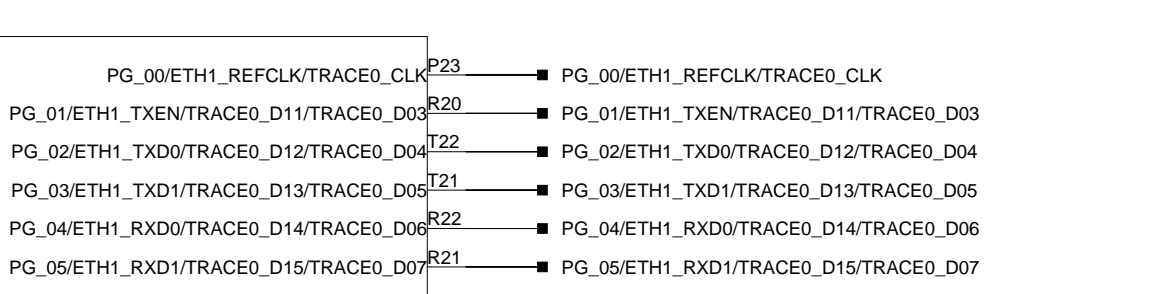
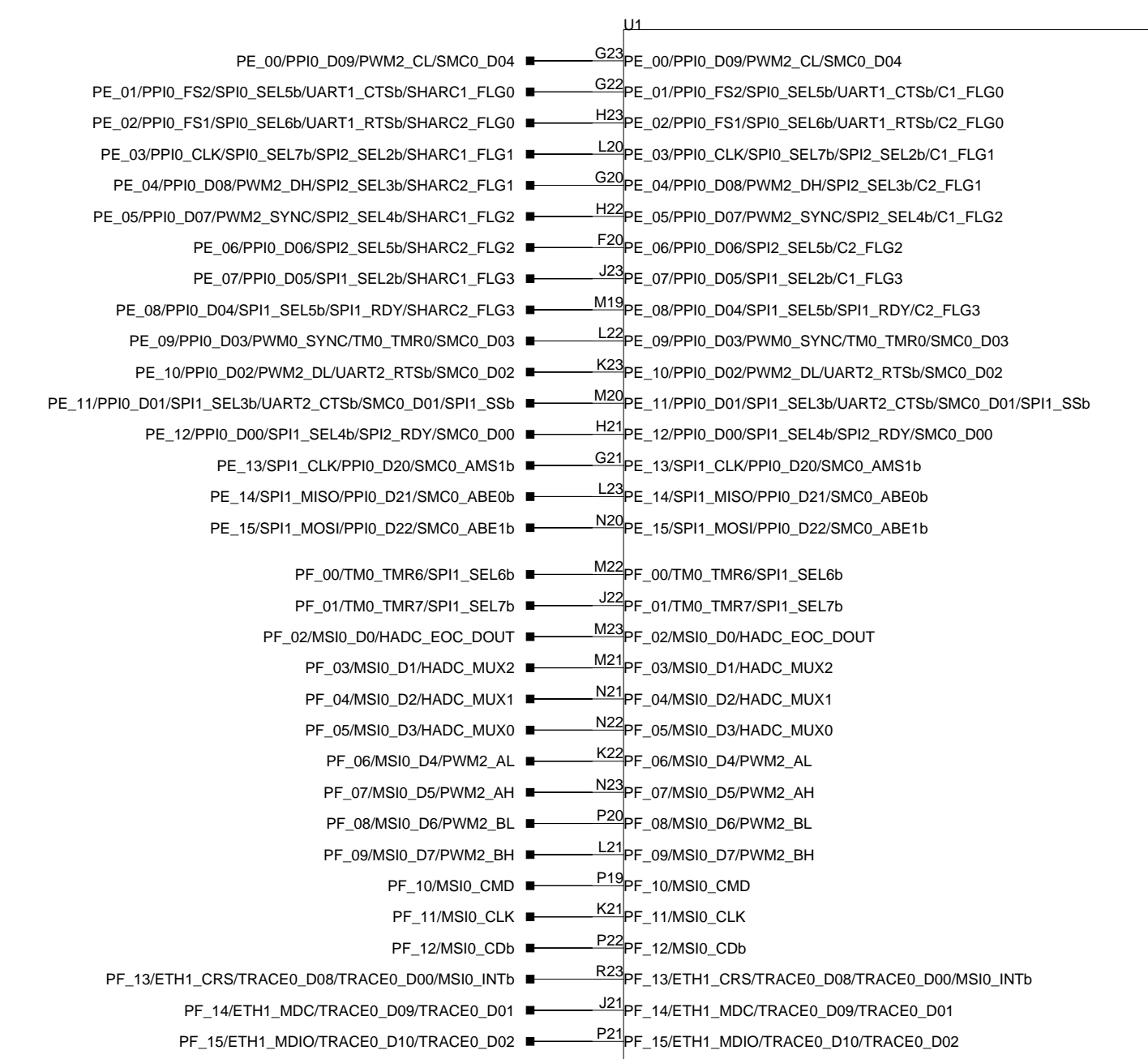
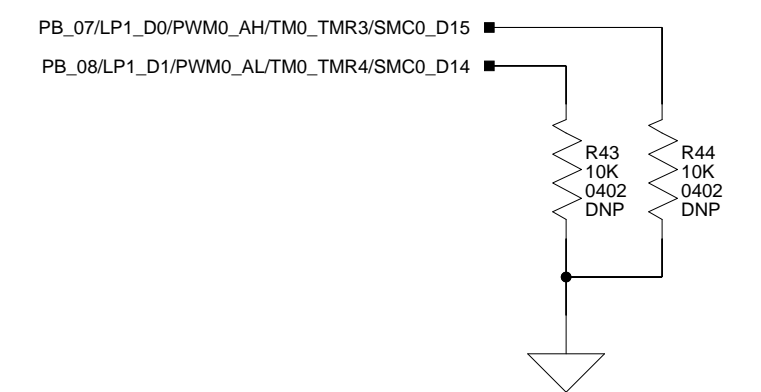
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4

4



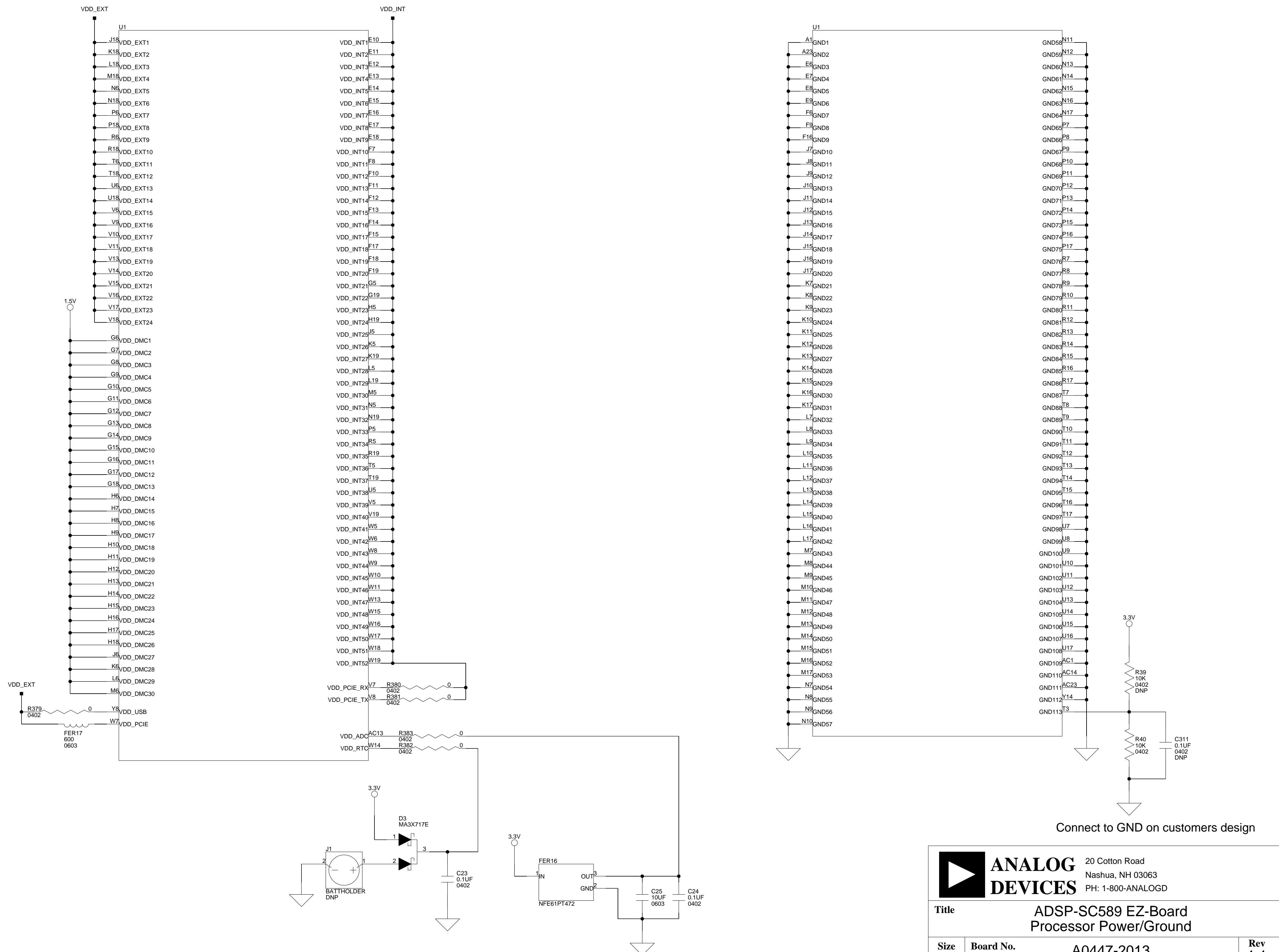
TP for PWM0\_AH/AL to connect to N5425A  
Place close to DSP



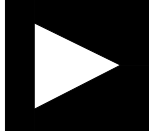


20 Cotton Road  
Nashua, NH 03063  
PH: 1-800-ANALOGD

Title		<b>ADSP-SC589 EZ-Board Mux Ports</b>	
Size C	Board No.	A0447-2013	
Date	4/6/15	Sheet	5 of 29
		Rev	1.1



Connect to GND on customers design

 <b>ANALOG DEVICES</b>		20 Cotton Road Nashua, NH 03063 PH: 1-800-ANALOGD	
<b>Title</b> ADSP-SC589 EZ-Board Processor Power/Ground			
<b>Size C</b>	<b>Board No.</b> A0447-2013	<b>Rev</b> 1.1	
<b>Date</b> 4/6/15	<b>Sheet</b> 6	<b>of</b> 29	

A

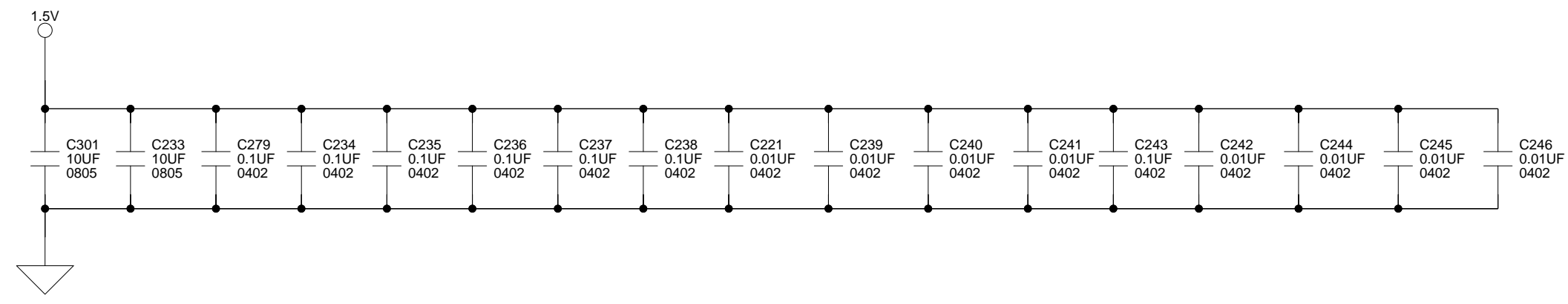
B

C

D

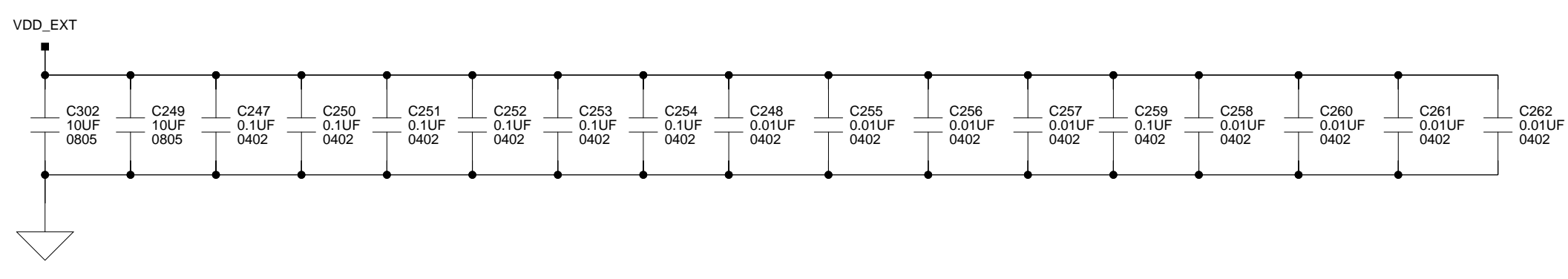
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1



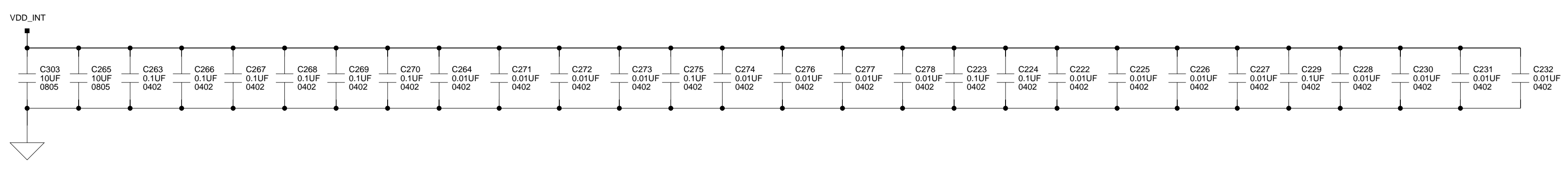
2

2



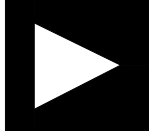
3

3



4

4

 <b>ANALOG DEVICES</b>		20 Cotton Road Nashua, NH 03063 PH: 1-800-ANALOGD	
		<b>Title</b> ADSP-SC589 EZ-Board Proc Bypass Caps	
<b>Size</b> C	<b>Board No.</b> A0447-2013	<b>Rev</b> 1.1	
<b>Date</b> 4/6/15	<b>Sheet</b> 7	<b>of</b> 29	

A

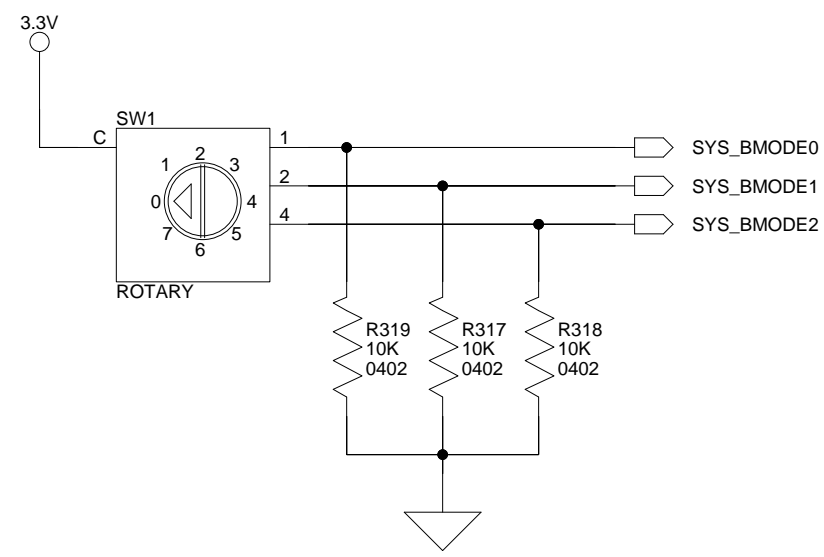
B

C

D

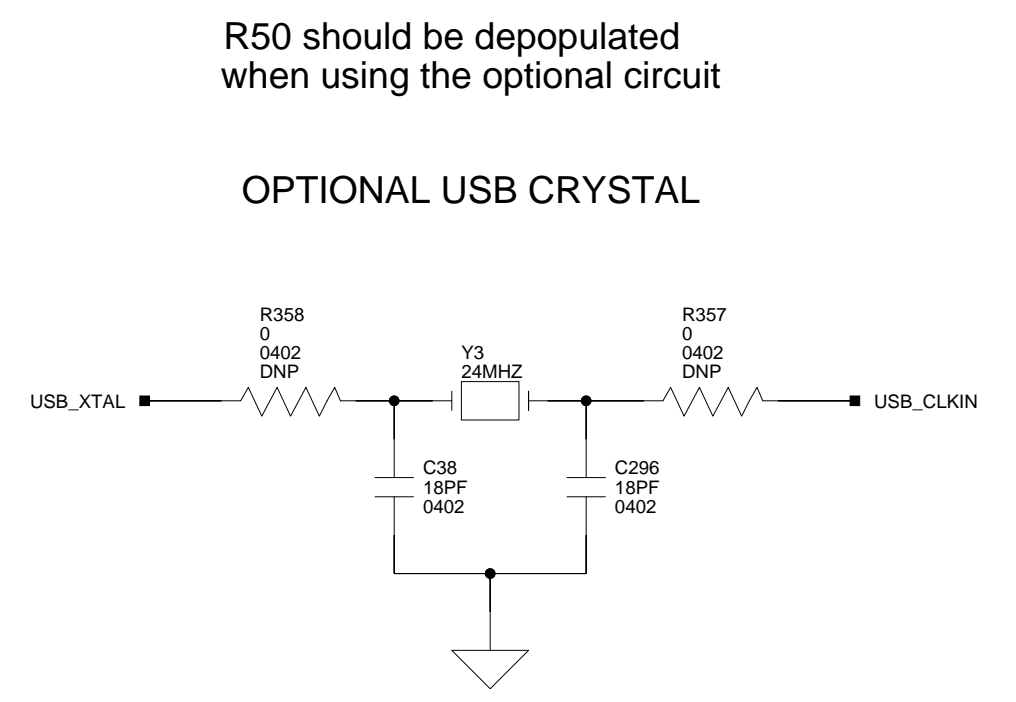
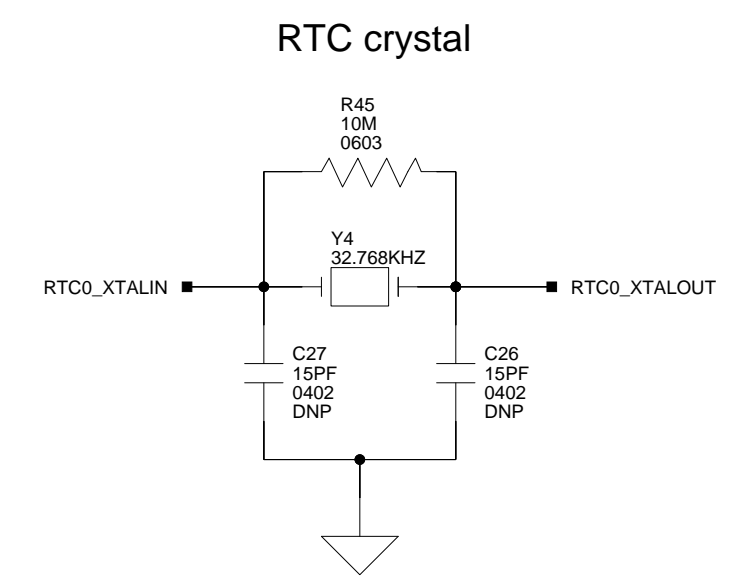






SW1: Boot mode selection switch

BMODE[2:0]	Boot Source	
000	No boot/Custom ROM	DEFAULT
001	SPI2 master boot	
010	SPI2 slave boot	
011	Reserved	
100	Reserved	
101	Reserved	
110	LP0 slave boot	
111	UART0 slave boot	

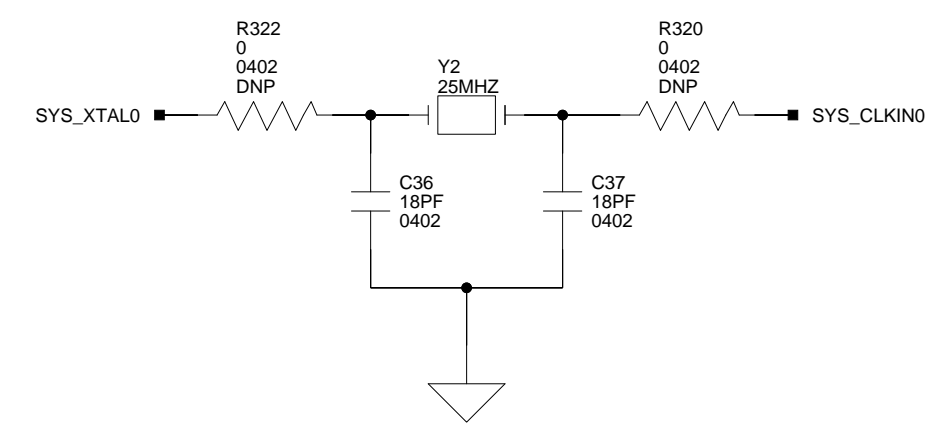


R50 should be depopulated when using the optional circuit

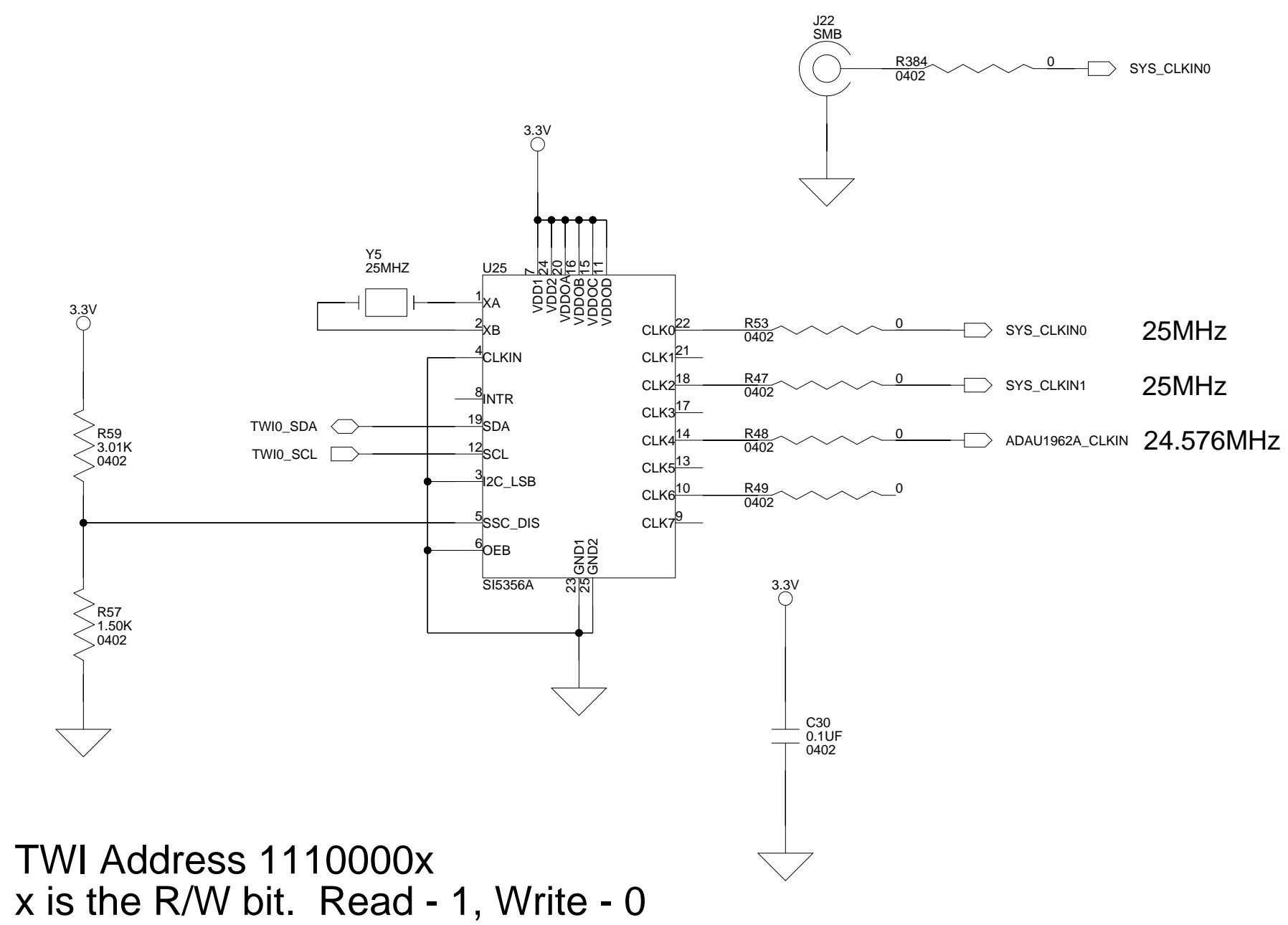
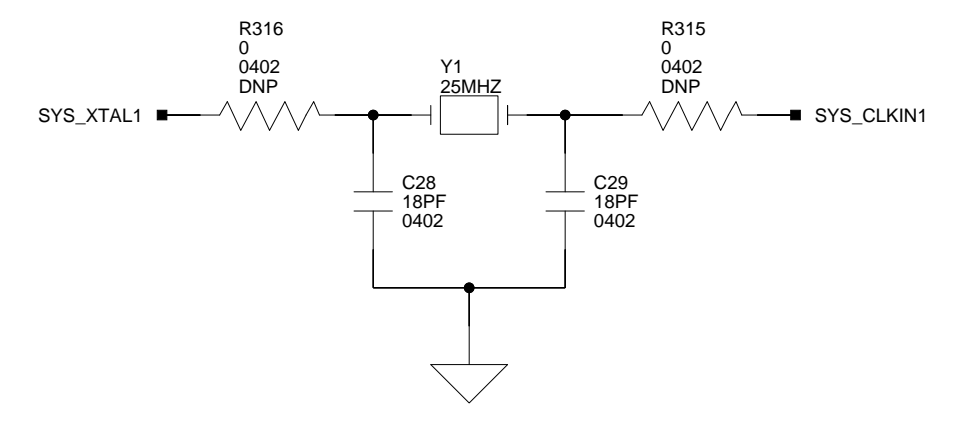
OPTIONAL USB CRYSTAL

R53 should be depopulated when using the optional circuit

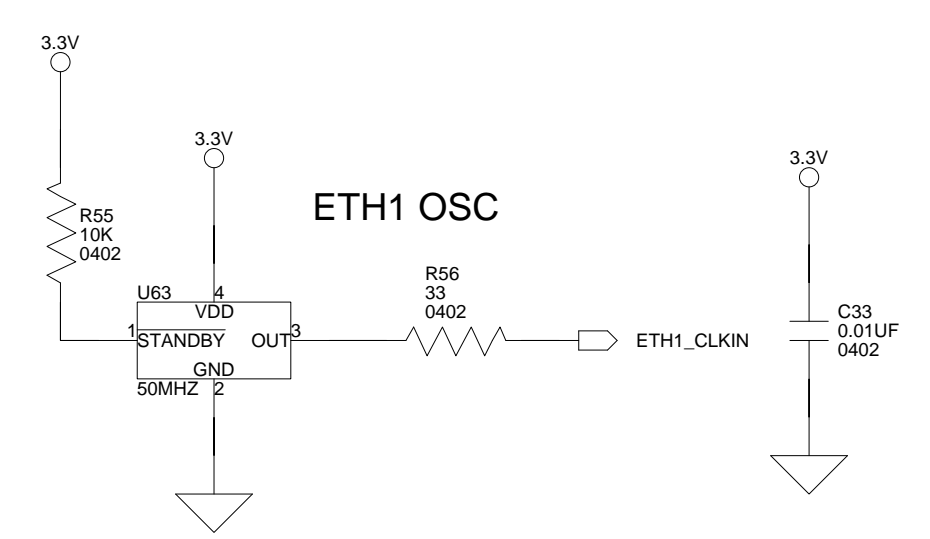
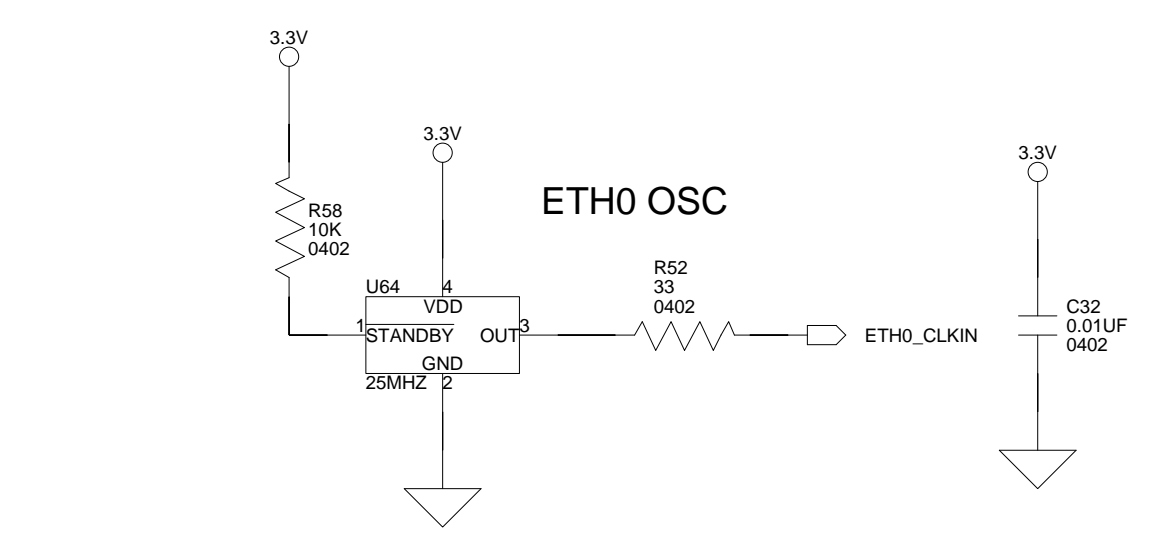
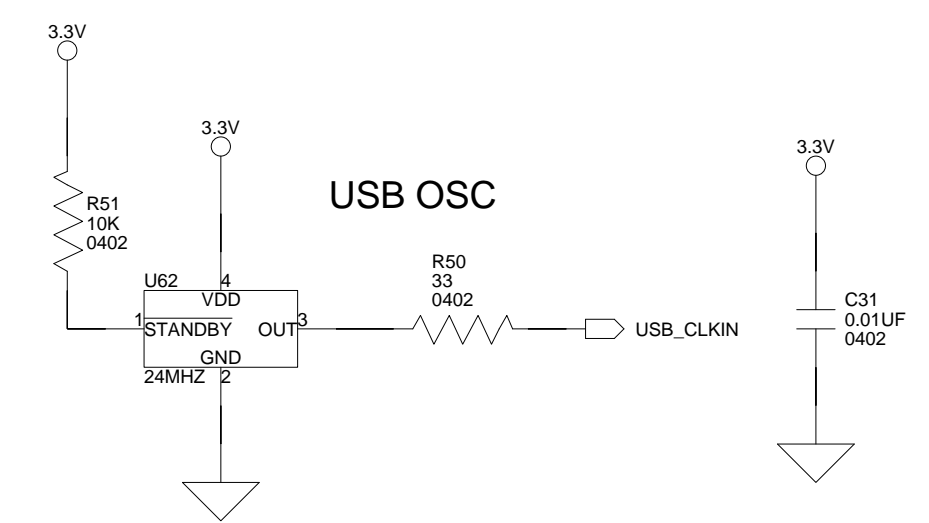
OPTIONAL DSP CRYSTALS



R47 should be depopulated when using the optional circuit

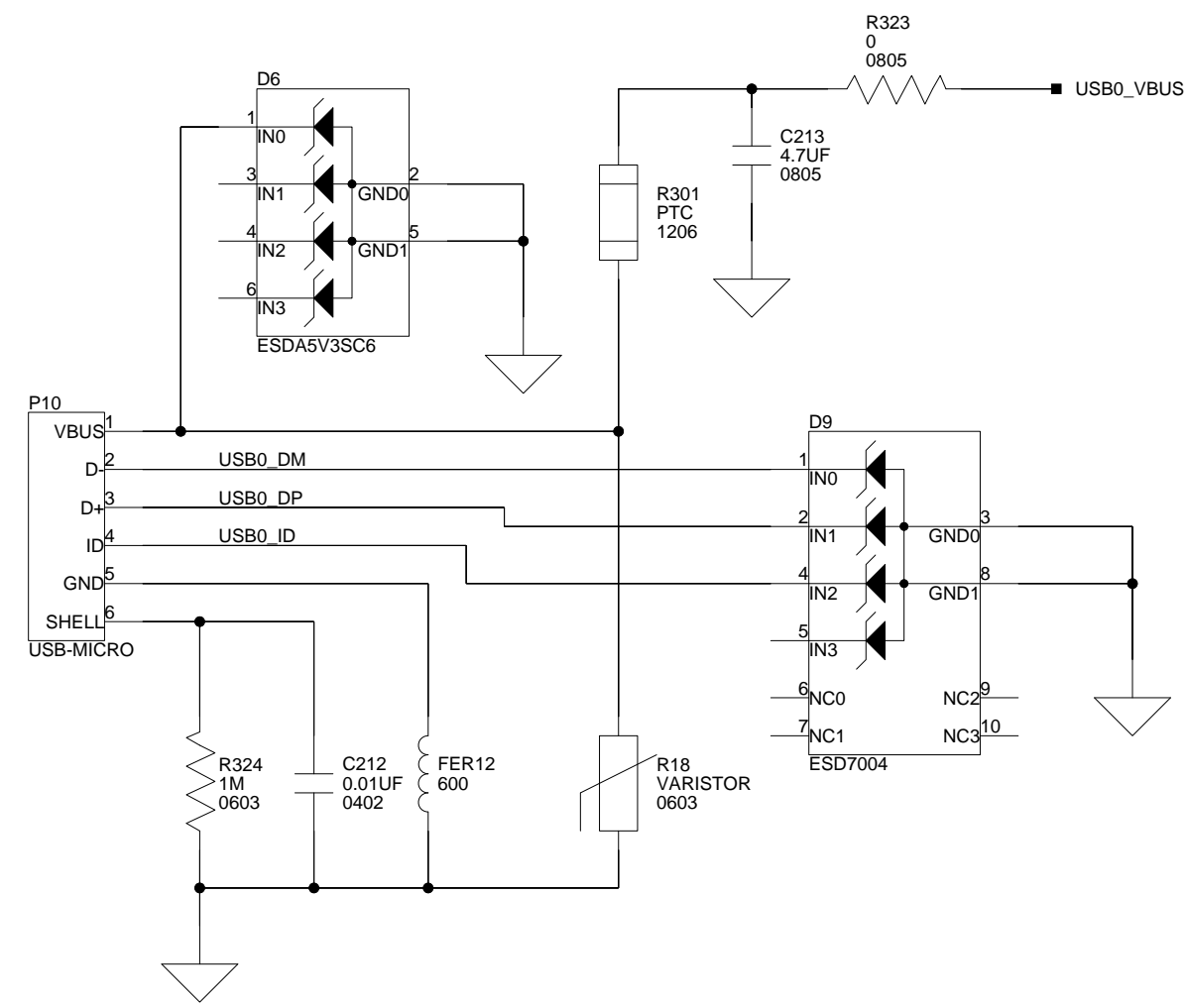


TWI Address 1110000x  
x is the R/W bit. Read - 1, Write - 0

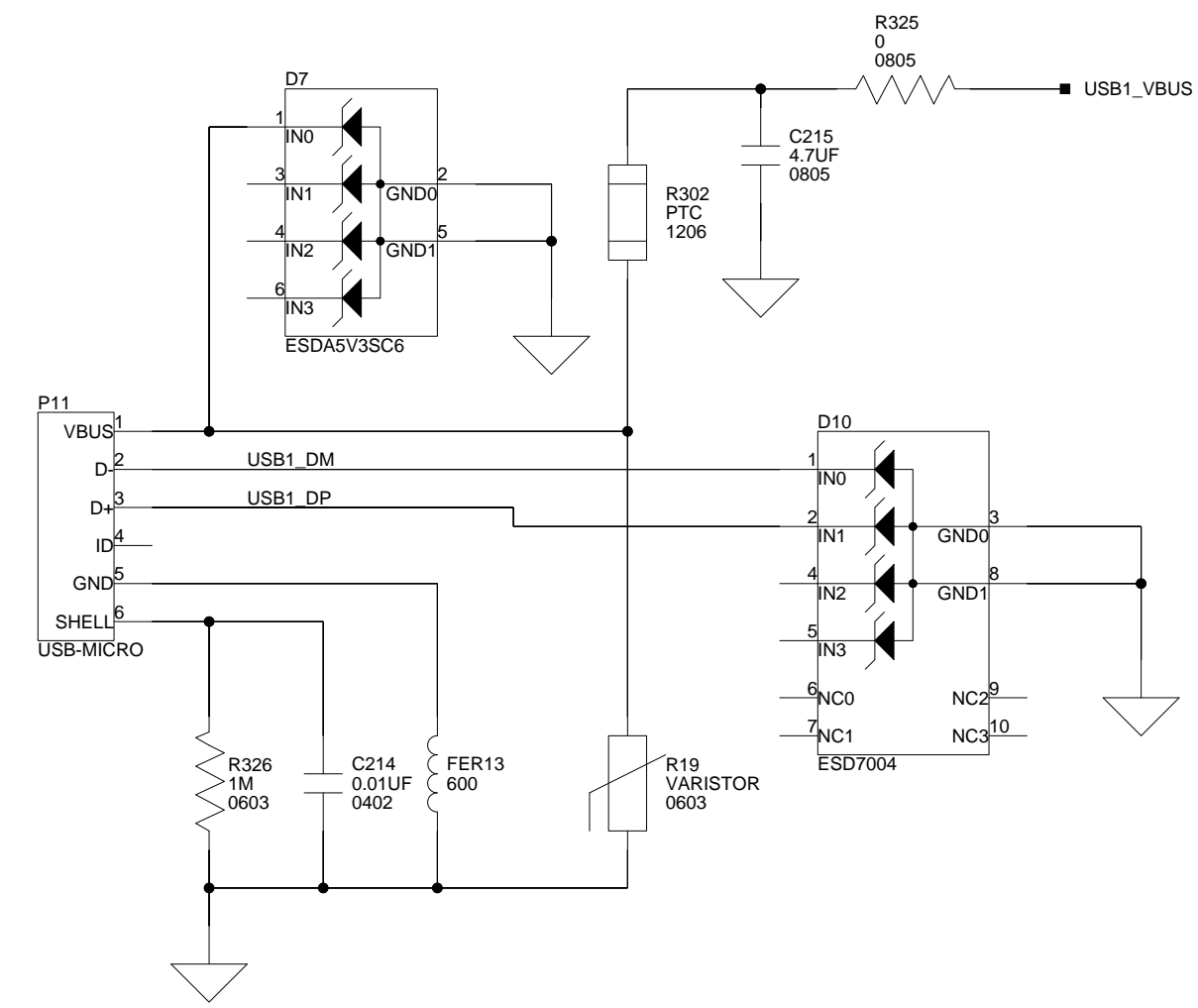


		20 Cotton Road Nashua, NH 03063 PH: 1-800-ANALOGD	
		<b>Title</b> ADSP-SC589 EZ-Board Clocks/Boot Mode	
<b>Size C</b>	<b>Board No.</b> A0447-2013	<b>Rev</b> 1.1	
<b>Date</b> 4/6/15	<b>Sheet</b> 9		<b>of</b> 29

"USB OTG"  
HOST/DEVICE



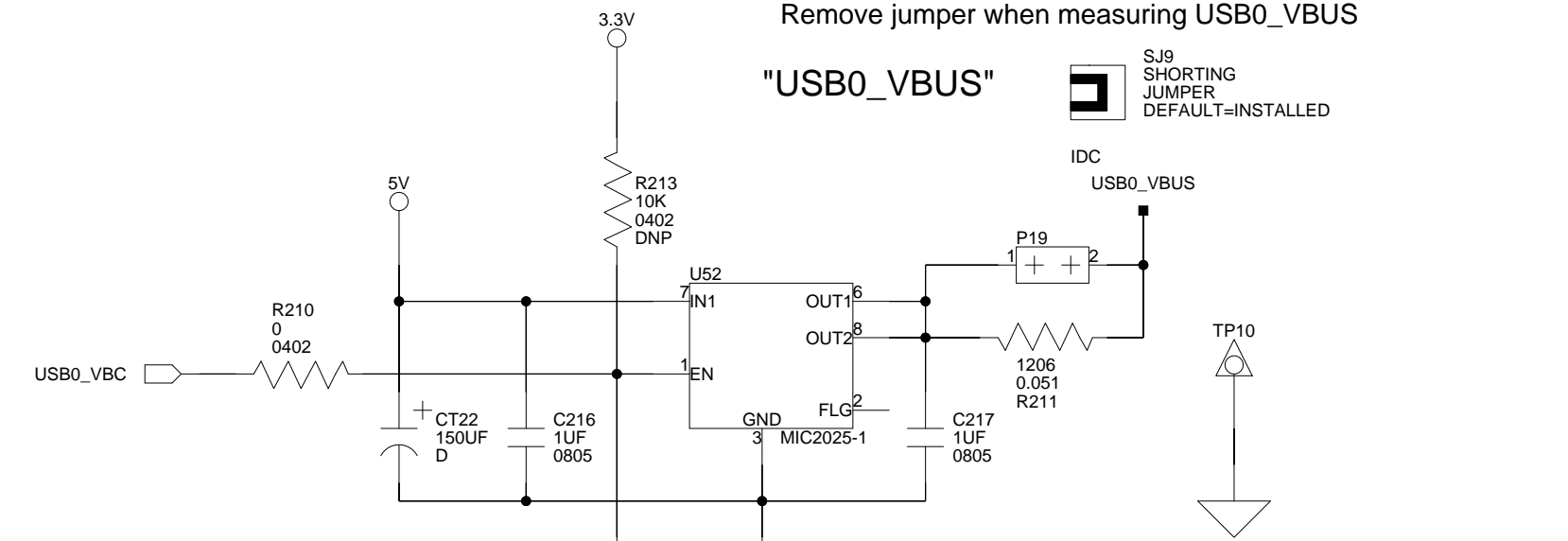
"USB HS"  
DEVICE



Remove jumper when measuring USB0\_VBUS

"USB0\_VBUS"

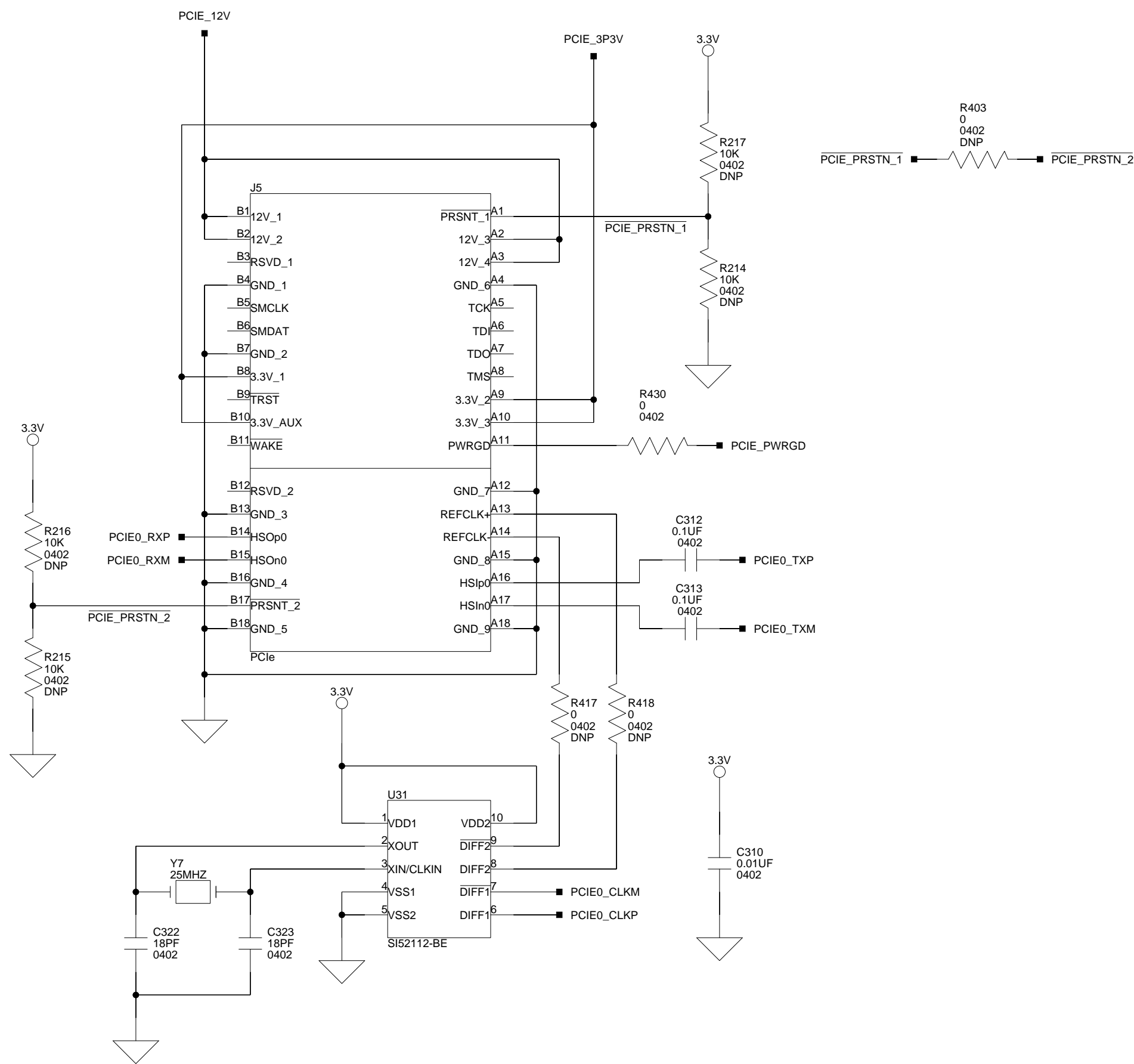
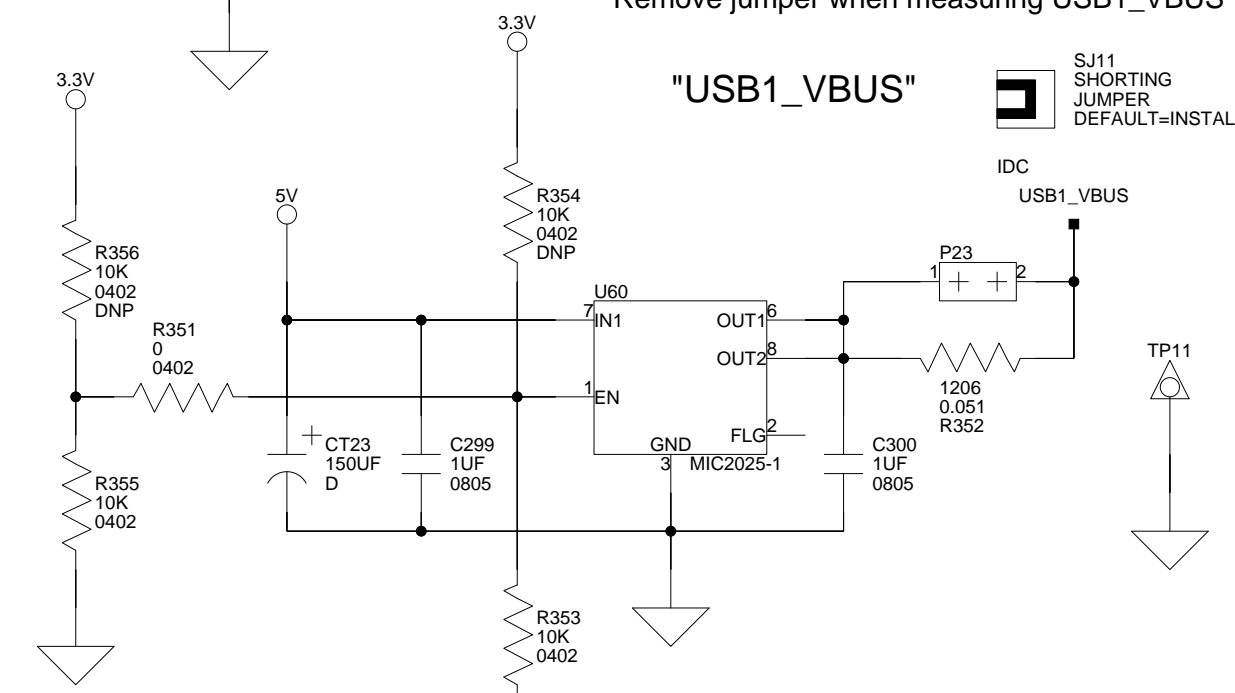
SJ9 SHORTING JUMPER DEFAULT=INSTALLED



Remove jumper when measuring USB1\_VBUS

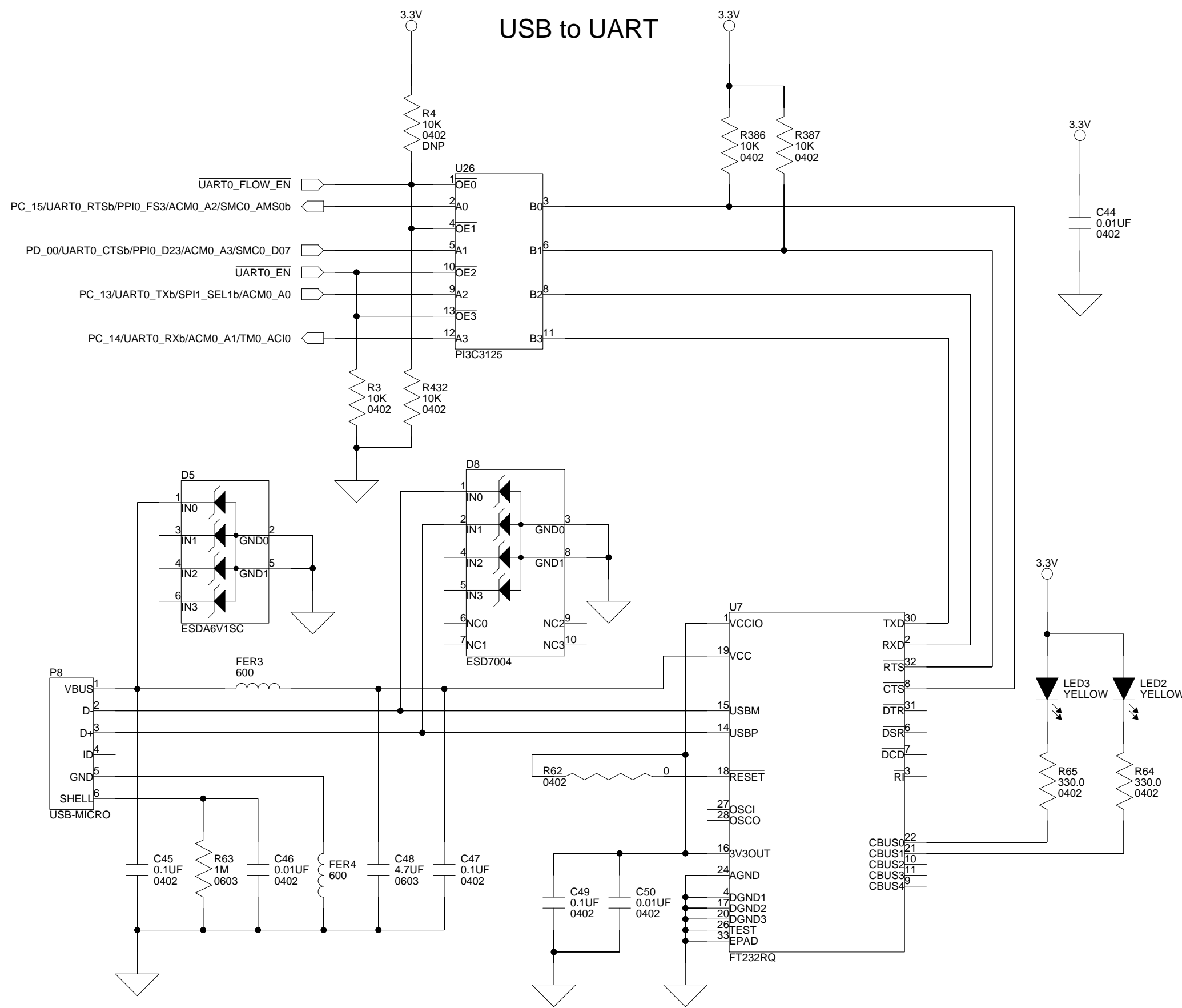
"USB1\_VBUS"

SJ11 SHORTING JUMPER DEFAULT=INSTALLED

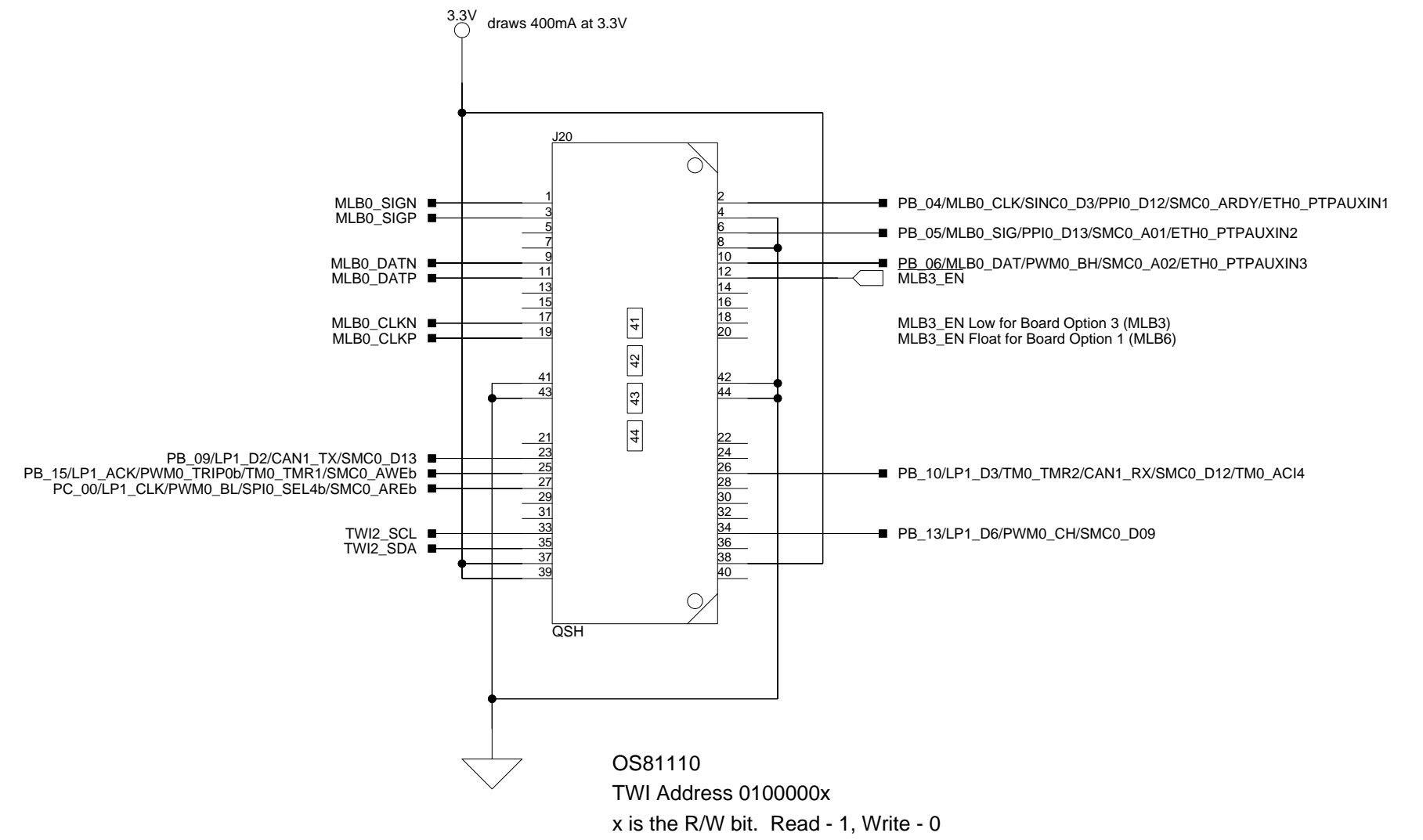


		20 Cotton Road Nashua, NH 03063 PH: 1-800-ANALOGD	
Title ADSP-SC589 EZ-Board USB/PCIe			
Size C	Board No.	A0447-2013	Rev 1.1
Date	4/6/15	Sheet 10	of 29

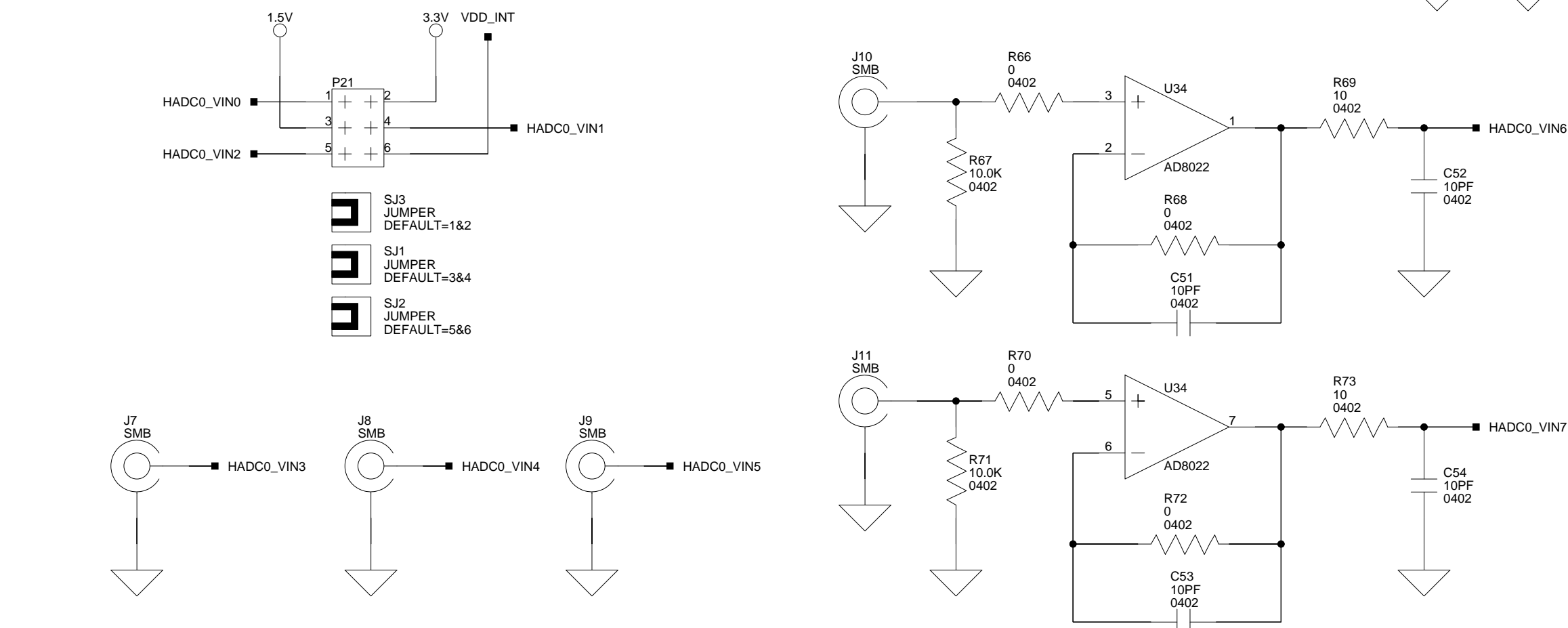
### USB to UART



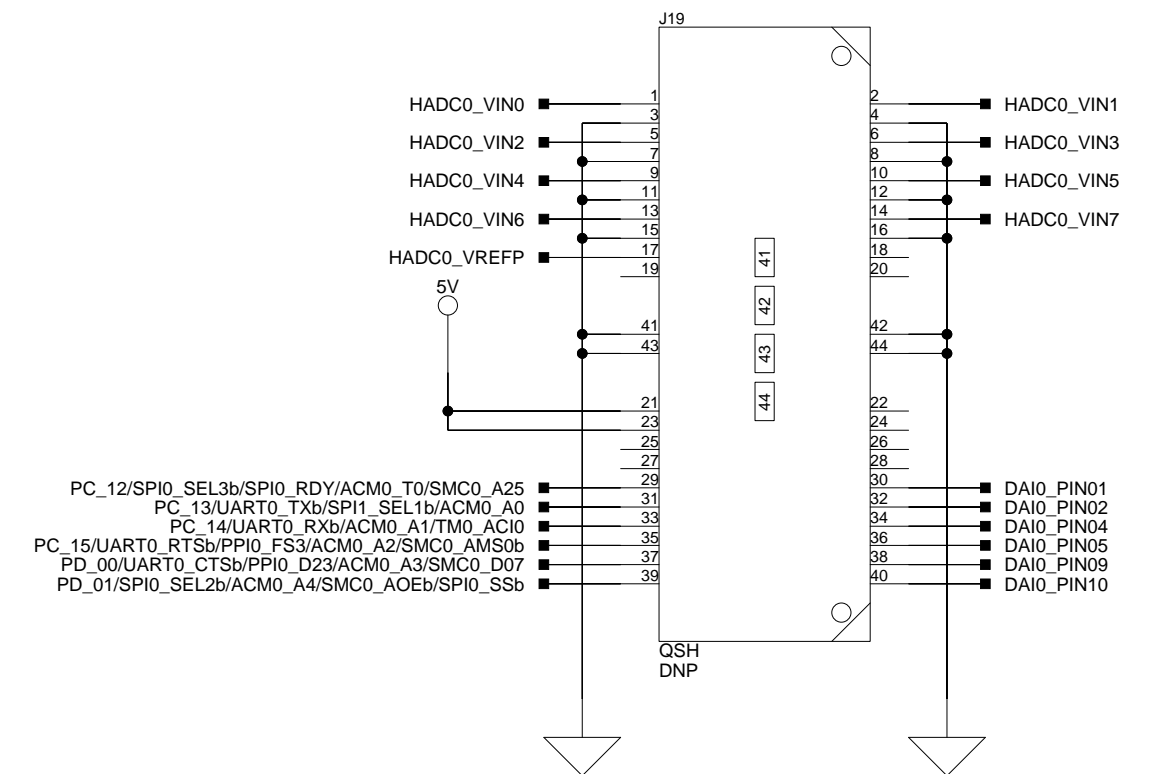
### MLB 3/6



### HADC Connectors



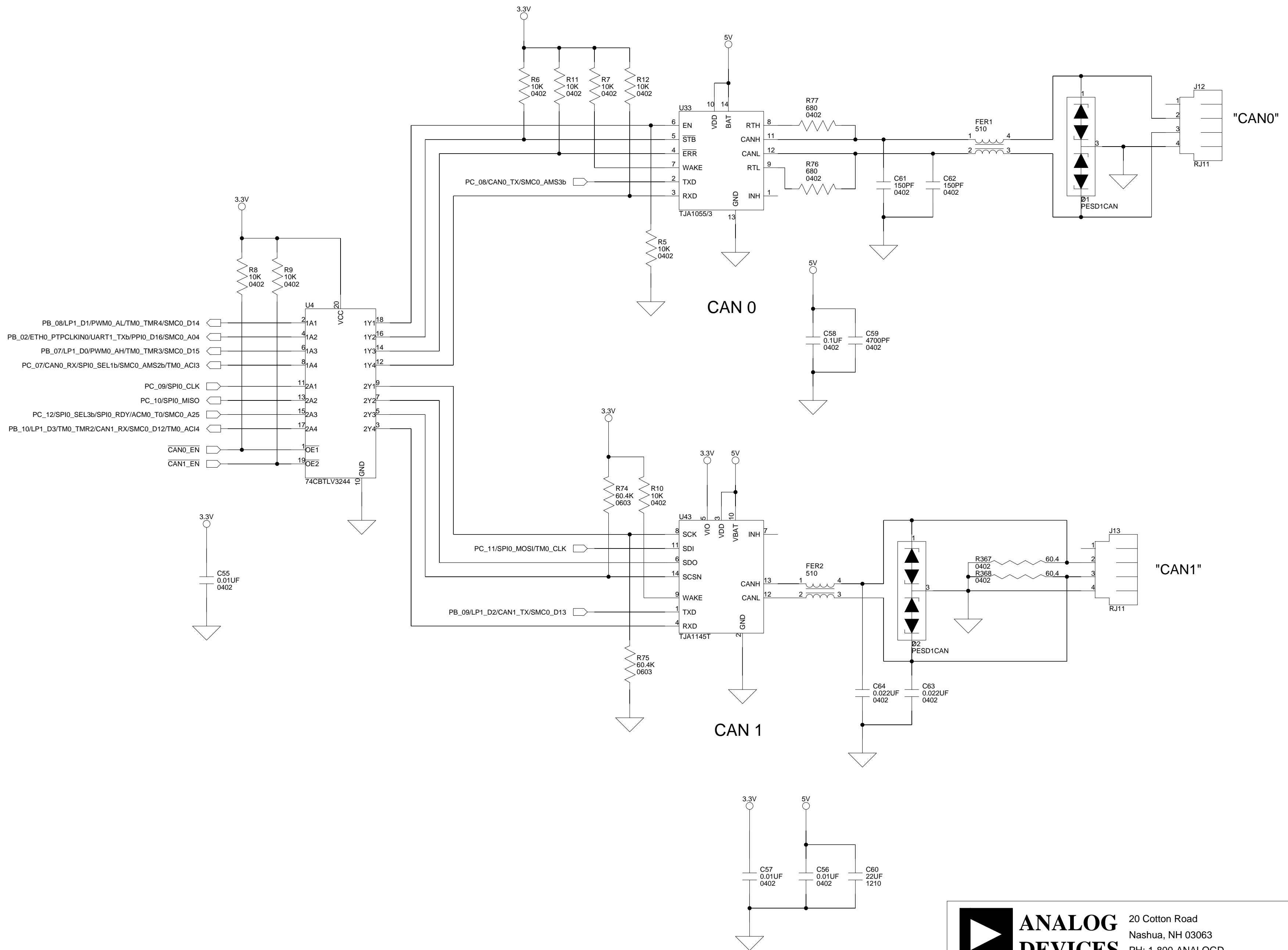
### ADC Connector

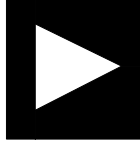


**ANALOG DEVICES**

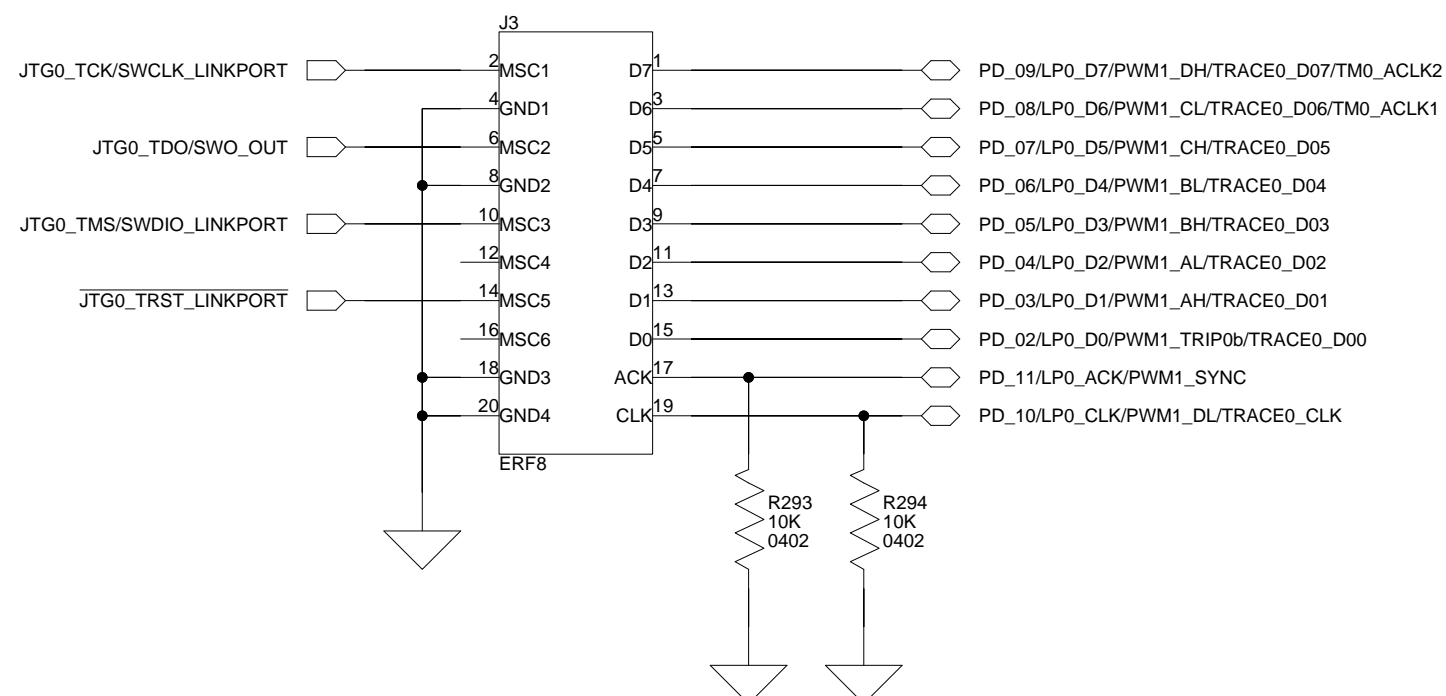
20 Cotton Road  
Nashua, NH 03063  
PH: 1-800-ANALOGD

<b>Title</b> ADSP-SC589 EZ-Board UART/MOST/HADC		
<b>Size C</b>	<b>Board No.</b> A0447-2013	<b>Rev</b> 1.1
<b>Date</b> 4/6/15	<b>Sheet</b> 11 <b>of</b> 29	

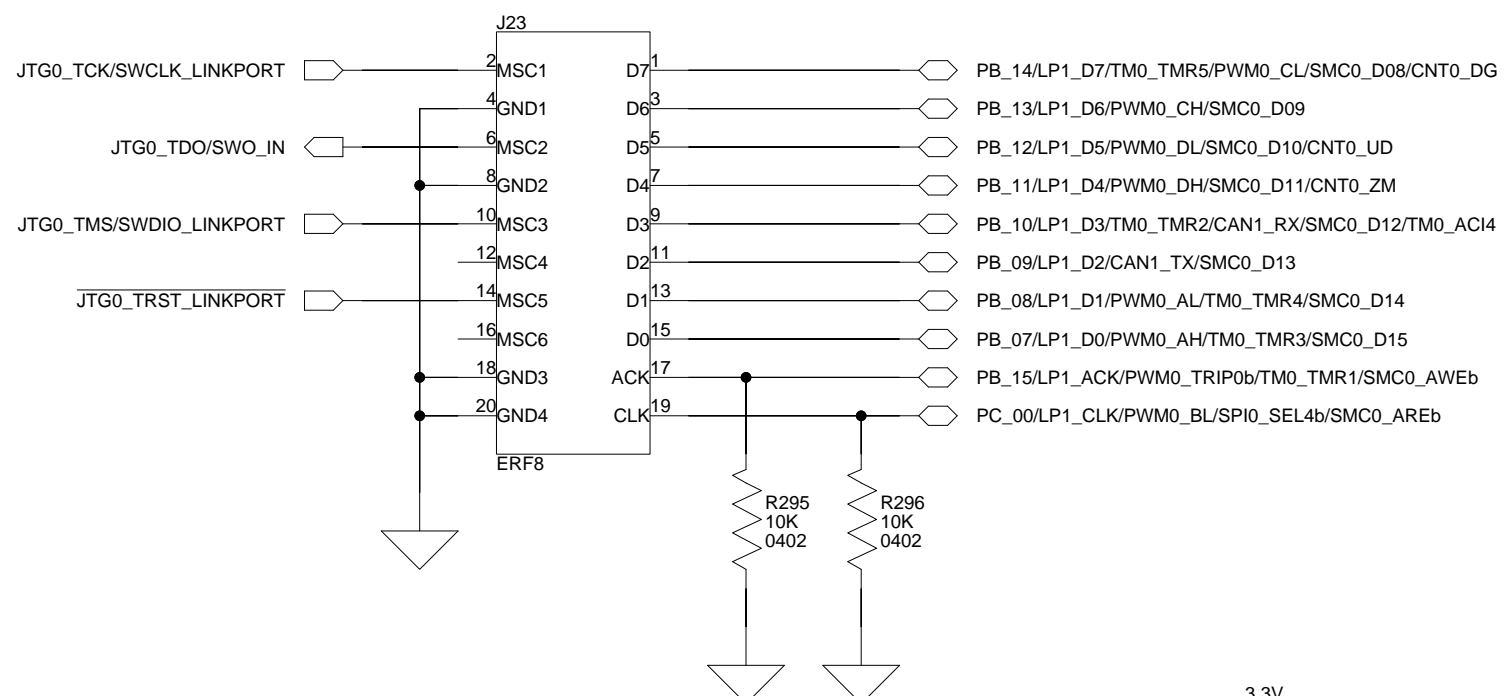


 <b>ANALOG DEVICES</b>		20 Cotton Road Nashua, NH 03063 PH: 1-800-ANALOGD
<b>Title</b> ADSP-SC589 EZ-Board CAN		
<b>Size C</b>	<b>Board No.</b> A0447-2013	<b>Rev</b> 1.1
<b>Date</b> 4/6/15	<b>Sheet</b> 12 <b>of</b> 29	

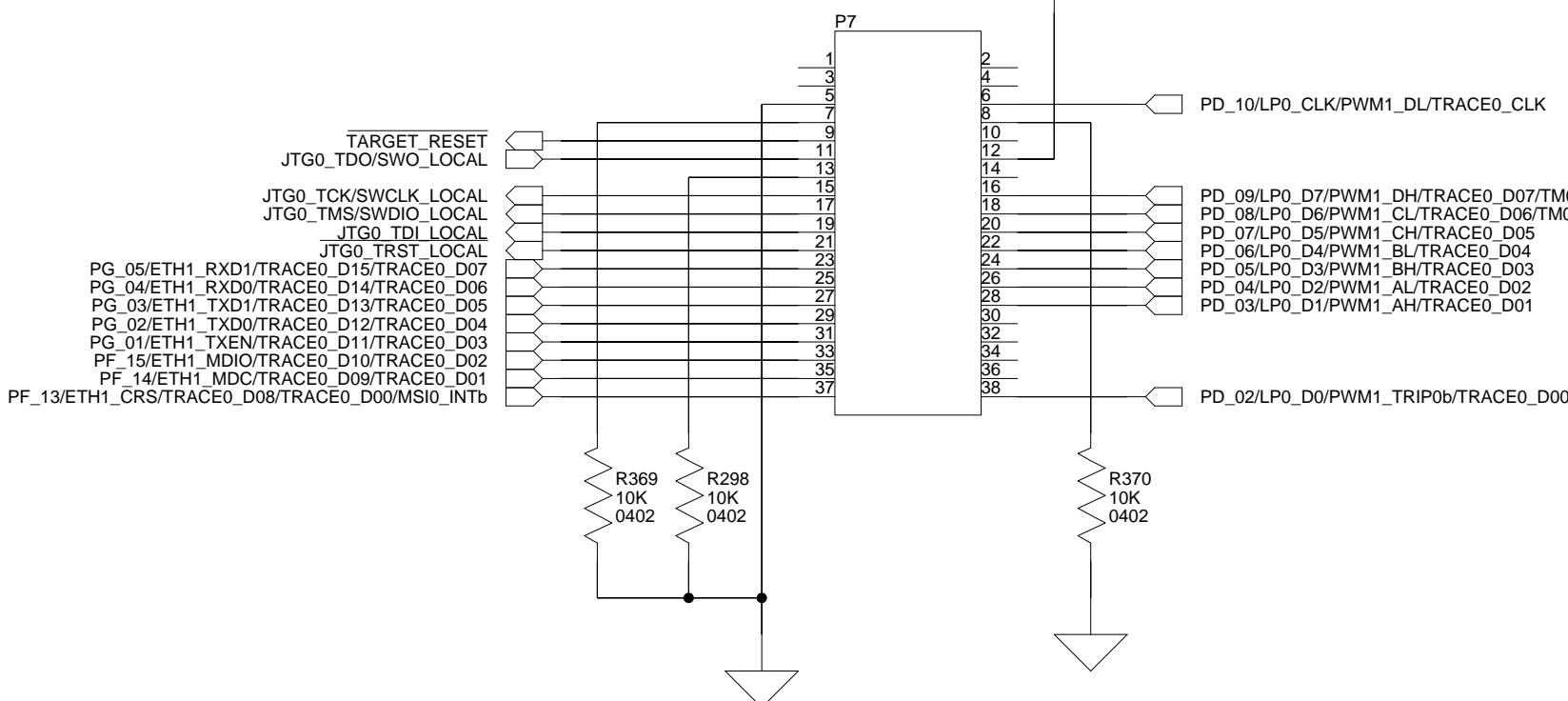
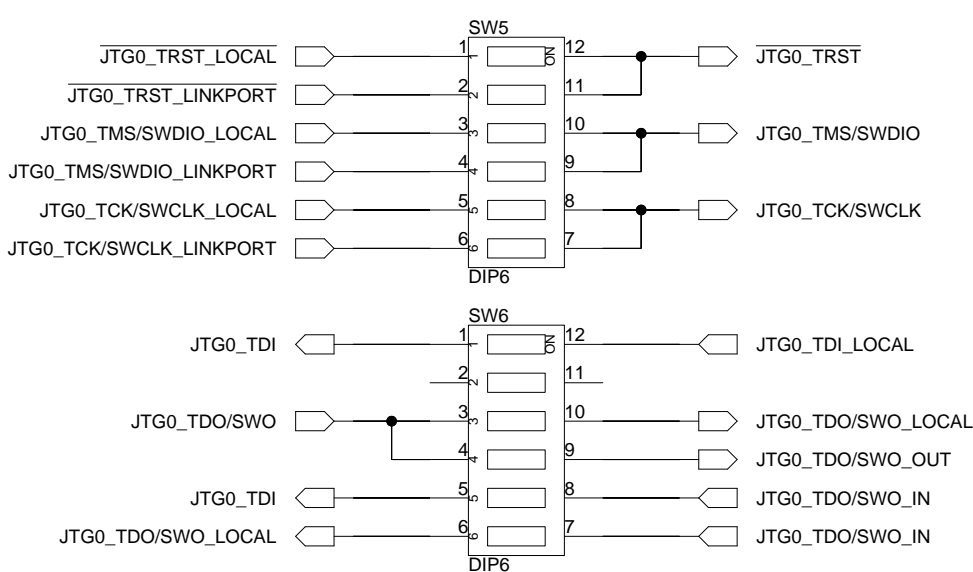
**LINK PORT 0 / JTAG OUT**



**LINK PORT 1 / JTAG IN**



**JTAG SWITCHES**



**SINGLE PROCESSOR JTAG SETTINGS  
EMULATOR OR DEBUG AGENT (DEFAULT)**

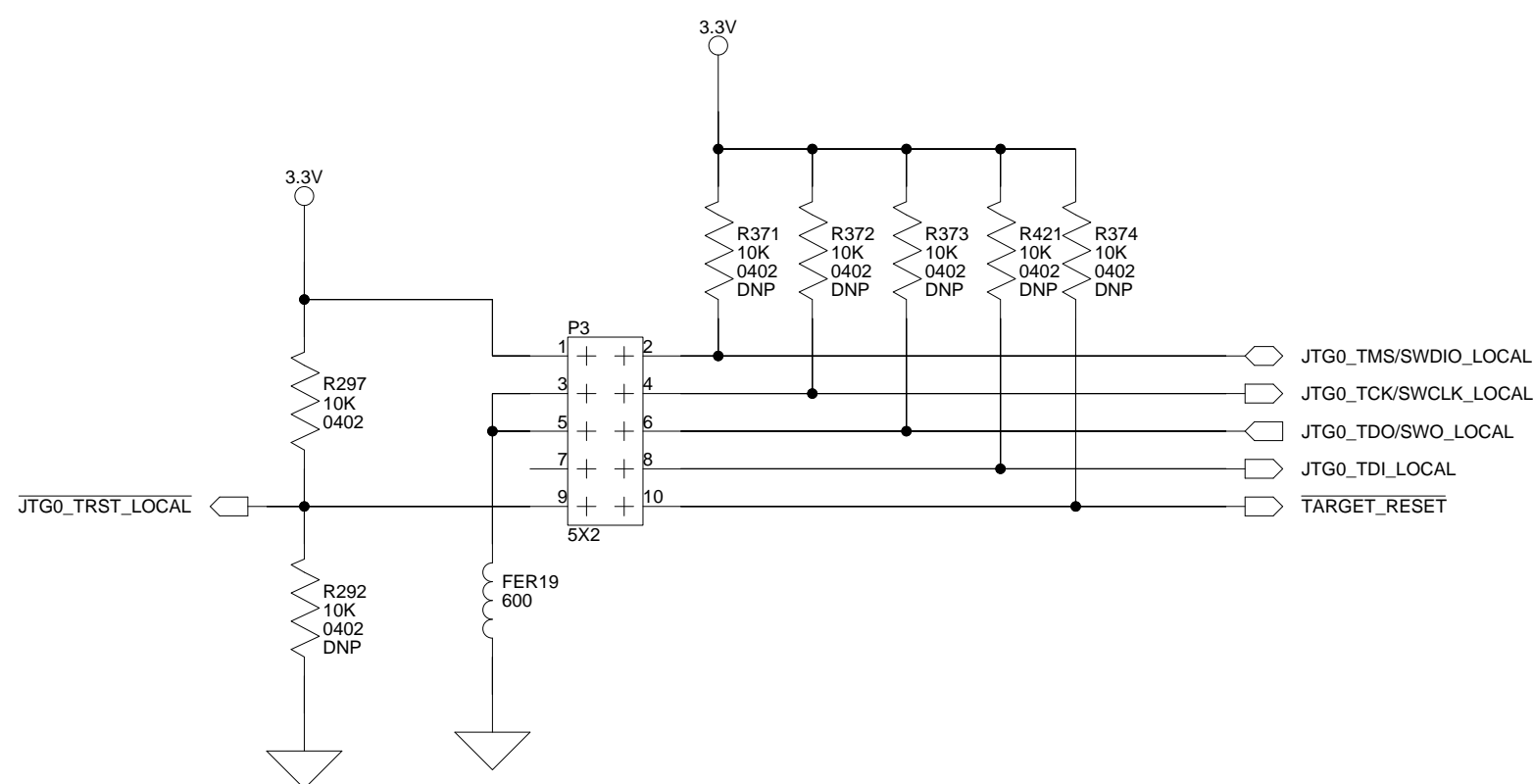
**BOARD ATTACHED**

SWITCH	TO EMULATOR
SW?.1	ON
SW?.2	OFF
SW?.3	ON
SW?.4	OFF
SW?.5	ON
SW?.6	OFF
SW?.1	ON
SW?.2	OFF
SW?.3	ON
SW?.4	OFF
SW?.5	OFF
SW?.6	OFF

**MULTI PROCESSOR JTAG SETTINGS  
USING TWO OR MORE EZ-BOARDS (LINK PORT CABLES  
REQUIRED FOR MORE THAN TWO BOARDS)**

**BOARD ATTACHED BOARD(S) NOT ATTACHED**

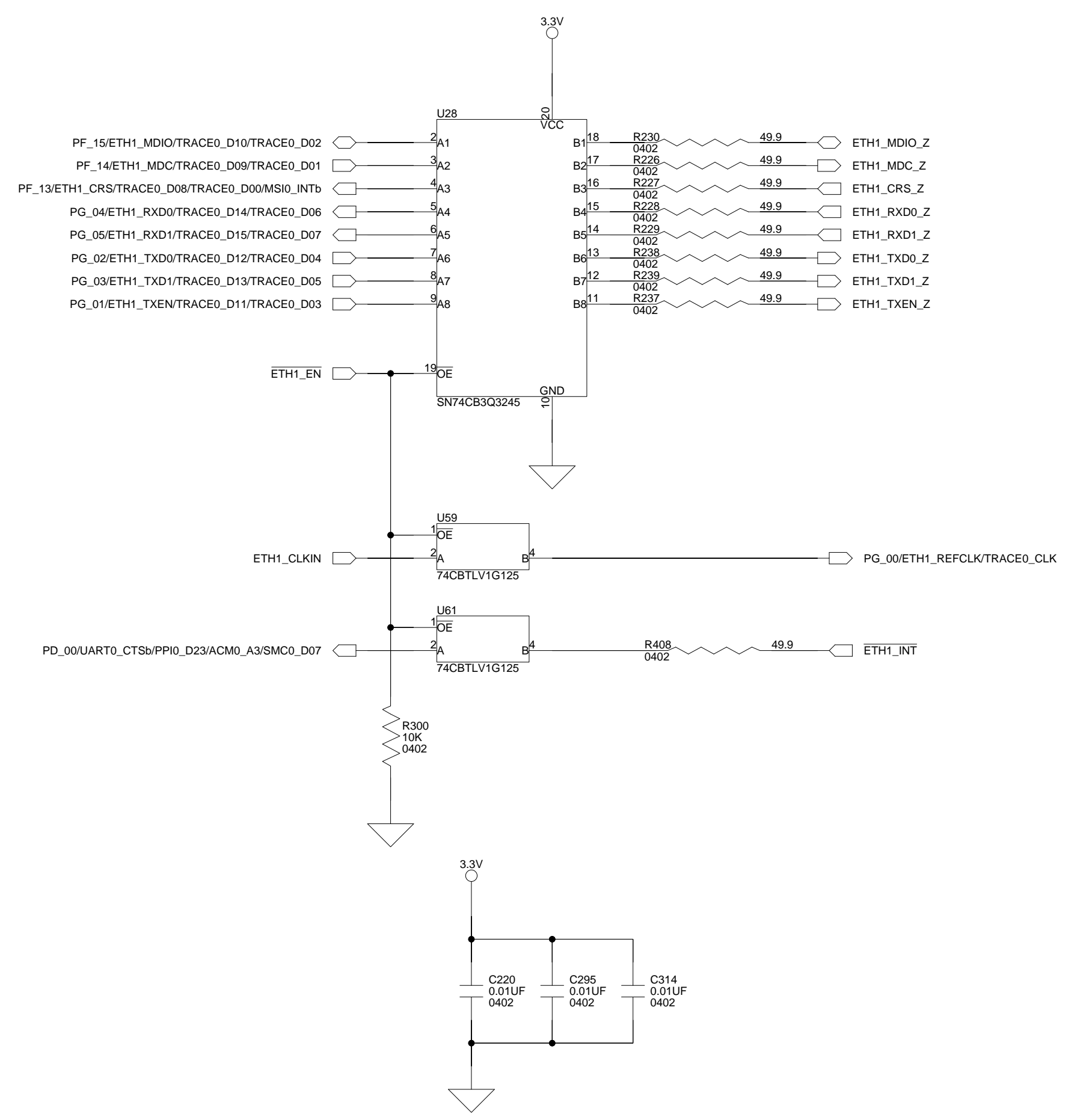
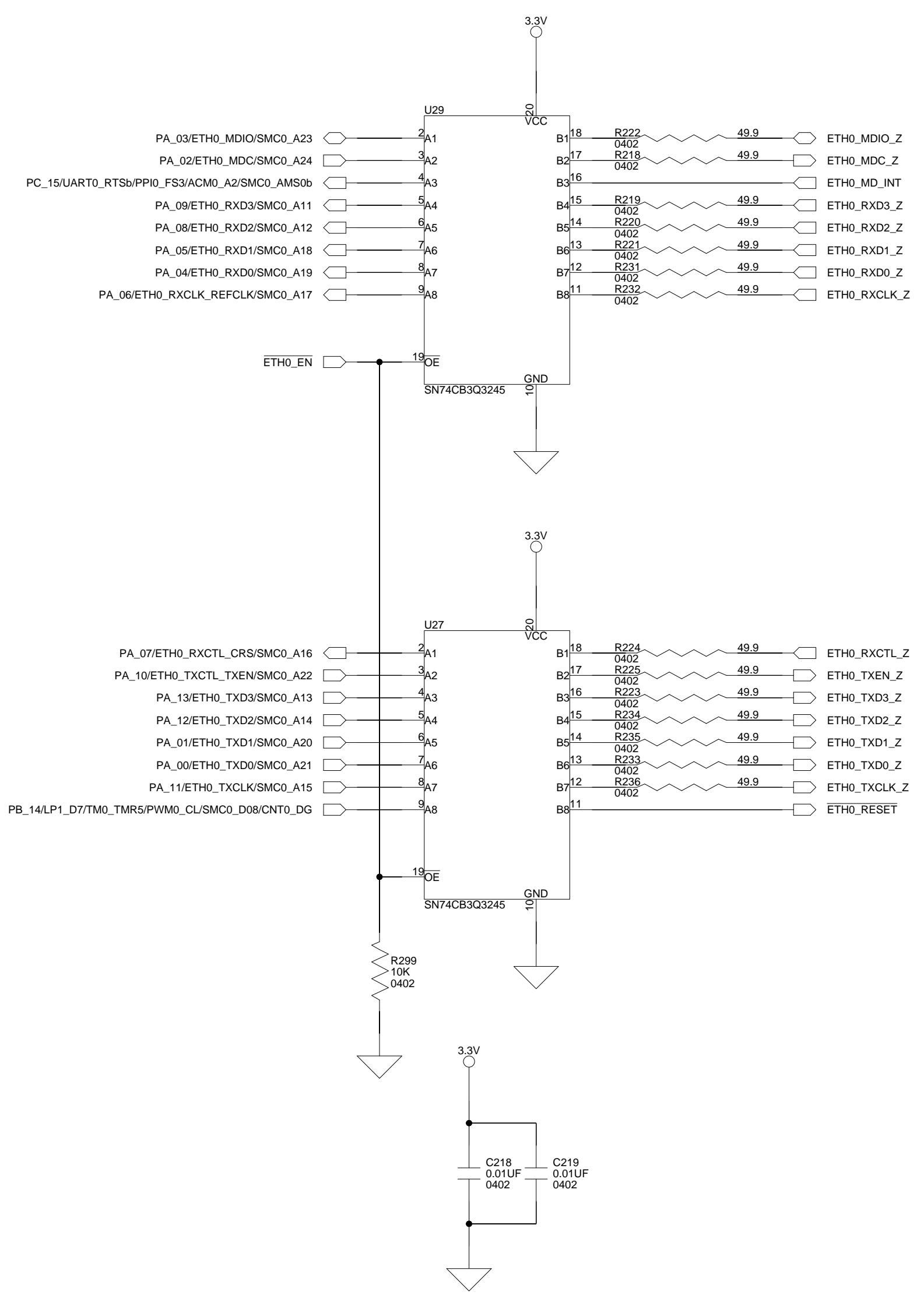
SWITCH	TO EMULATOR	TO EMULATOR
SW?.1	ON	OFF
SW?.2	ON	ON
SW?.3	ON	OFF
SW?.4	ON	ON
SW?.5	ON	OFF
SW?.6	ON	ON
SW?.1	ON	OFF
SW?.2	OFF	OFF
SW?.3	OFF	OFF
SW?.4	ON	ON
SW?.5	OFF	ON
SW?.6	ON	OFF

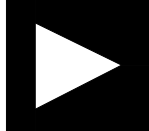


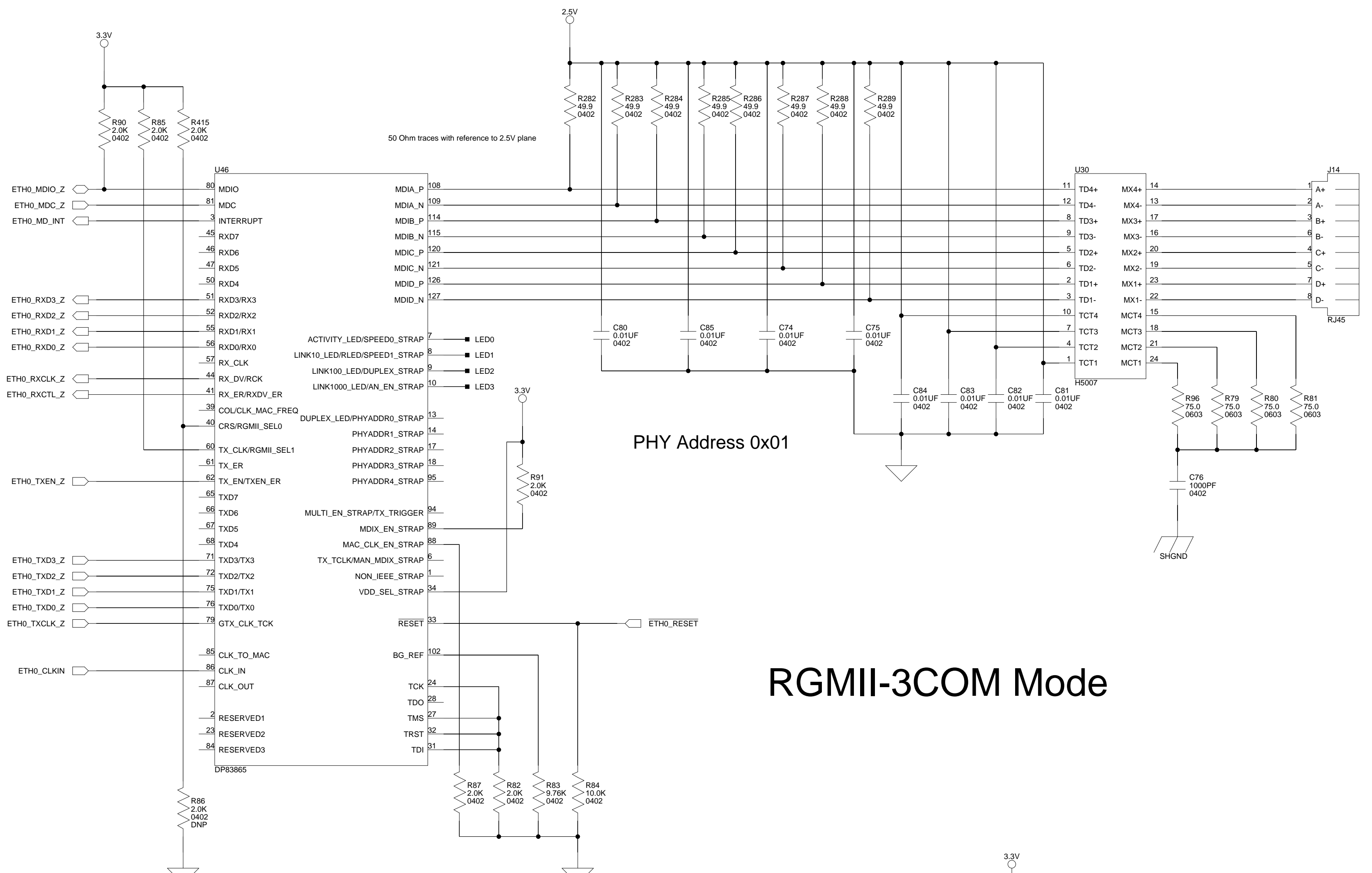
**ANALOG DEVICES**

20 Cotton Road  
Nashua, NH 03063  
PH: 1-800-ANALOGD

<b>Title</b> ADSP-SC589 EZ-Board Link Port/Debug		
<b>Size C</b>	<b>Board No.</b> A0447-2013	<b>Rev</b> 1.1
<b>Date</b> 4/6/15	<b>Sheet</b> 13 <b>of</b> 29	



 <b>ANALOG DEVICES</b>		20 Cotton Road Nashua, NH 03063 PH: 1-800-ANALOGD	
		<b>Title</b> ADSP-SC589 EZ-Board EMAC Switching	
<b>Size C</b>	<b>Board No.</b> A0447-2013	<b>Rev</b> 1.1	
<b>Date</b> 4/6/15	<b>Sheet</b> 14	<b>of</b> 29	




PHY Address 0x01

# RGMII-3COM Mode

Use ClkOutDis to disable CLK\_OUT when used for SPDIF

TWI Address 1001110x  
x is the R/W bit. Read - 1, Write - 0

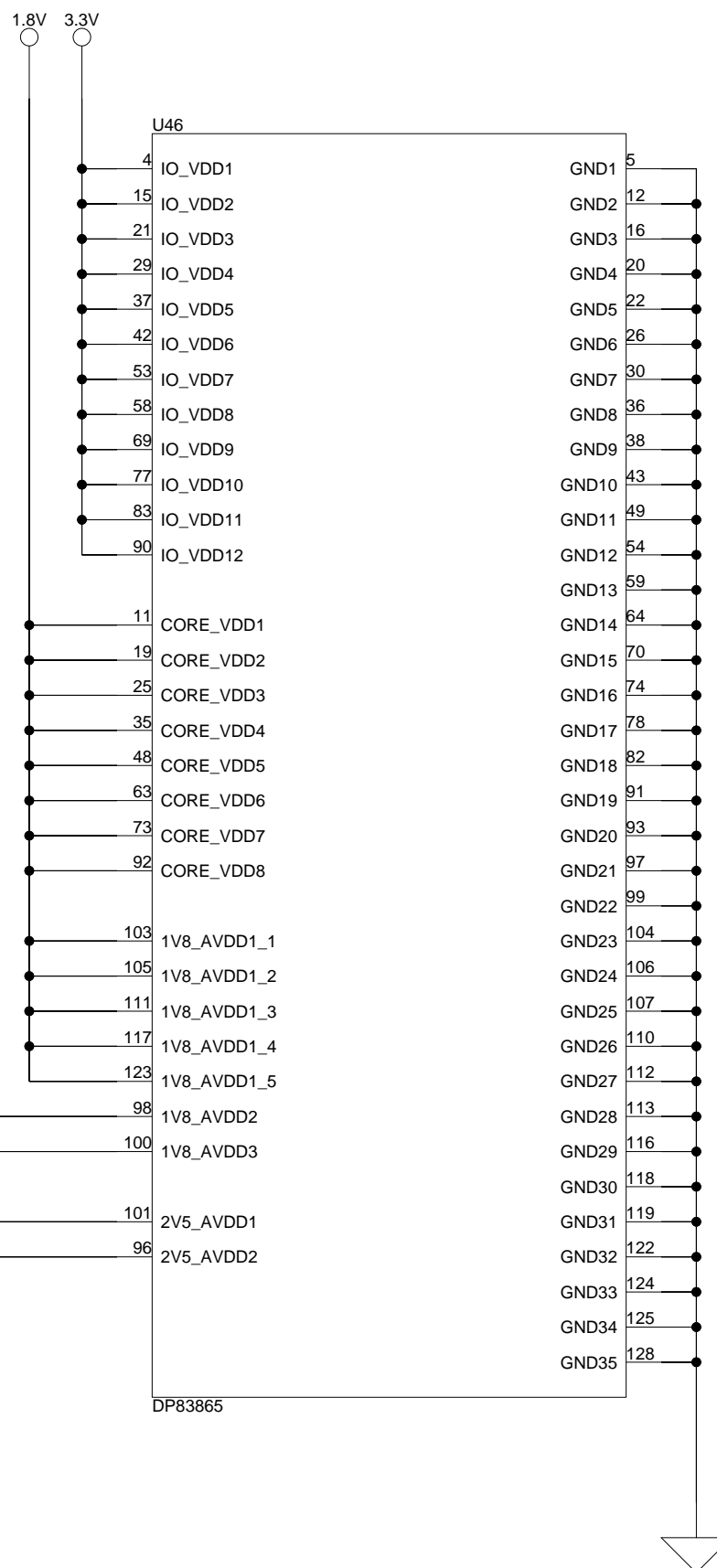
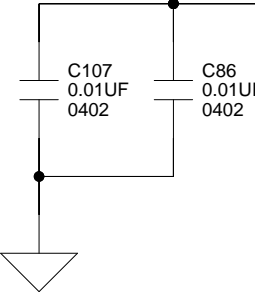
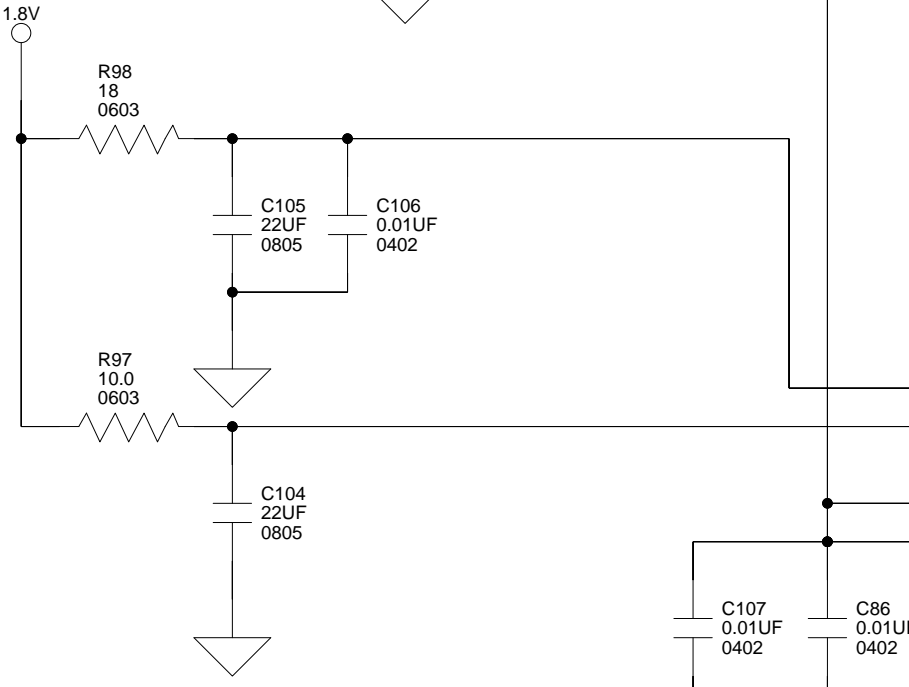
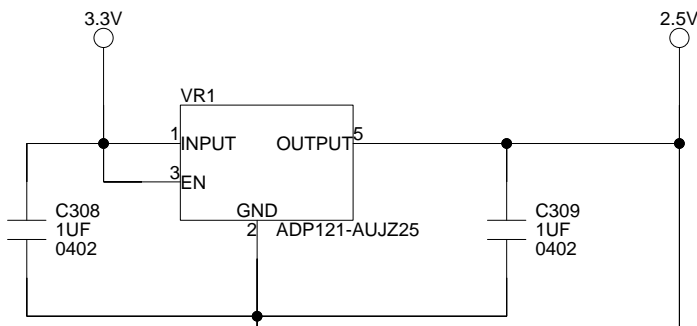
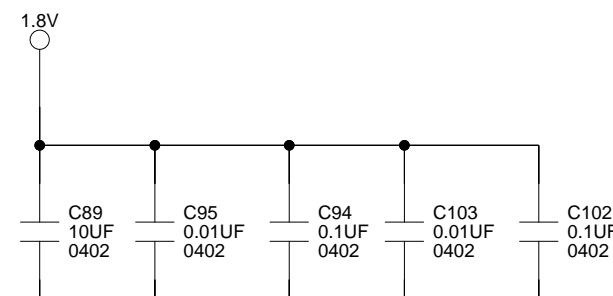
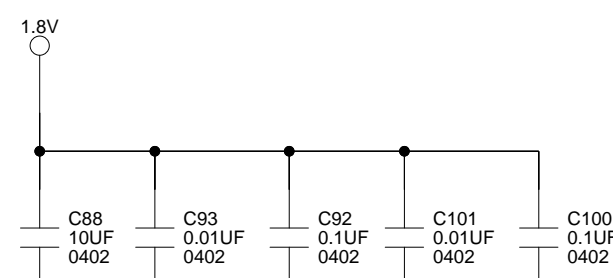
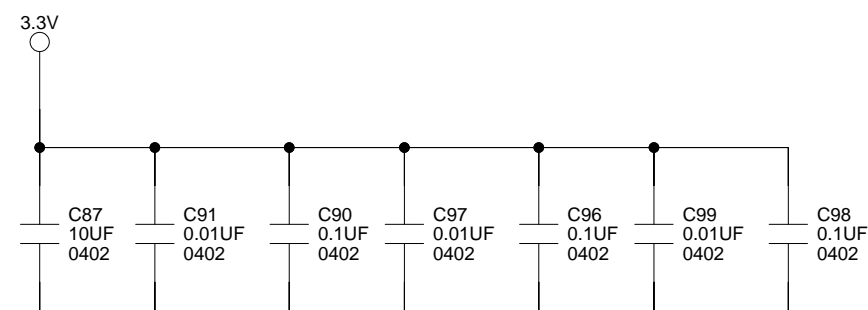
		20 Cotton Road Nashua, NH 03063 PH: 1-800-ANALOGD	
<b>Title</b> ADSP-SC589 EZ-Board DP83865			
<b>Size C</b>	<b>Board No.</b>	A0447-2013	
<b>Date</b>	4/6/15	<b>Sheet</b>	15 of 29
		<b>Rev</b>	1.1

A

B

C

D



**ANALOG DEVICES**

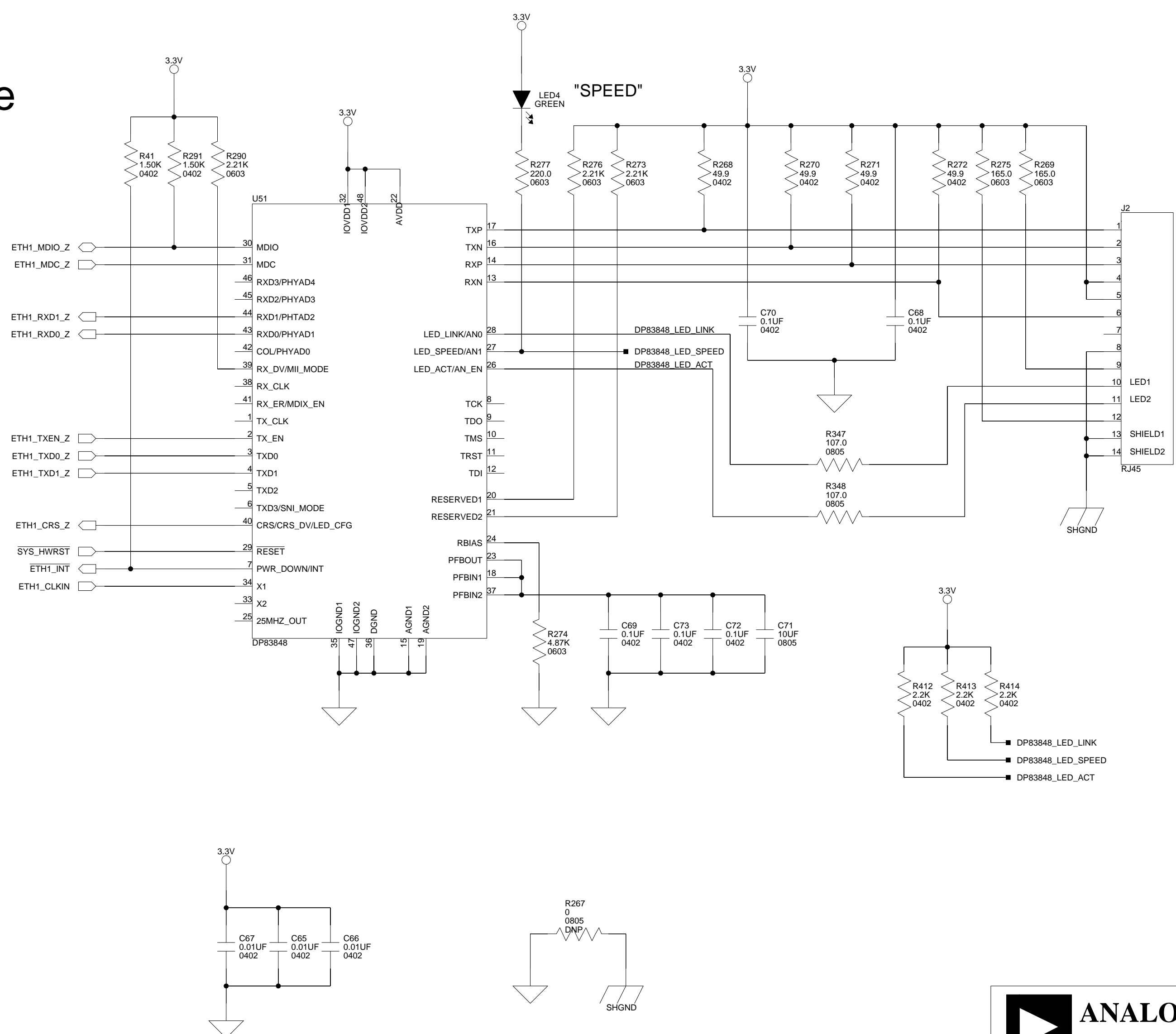
20 Cotton Road  
Nashua, NH 03063  
PH: 1-800-ANALOGD

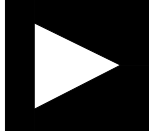
Title		ADSP-SC589 EZ-Board DP83865 Power	
Size C	Board No.	A0447-2013	Rev 1.1
Date	4/6/15	Sheet 16	of 29

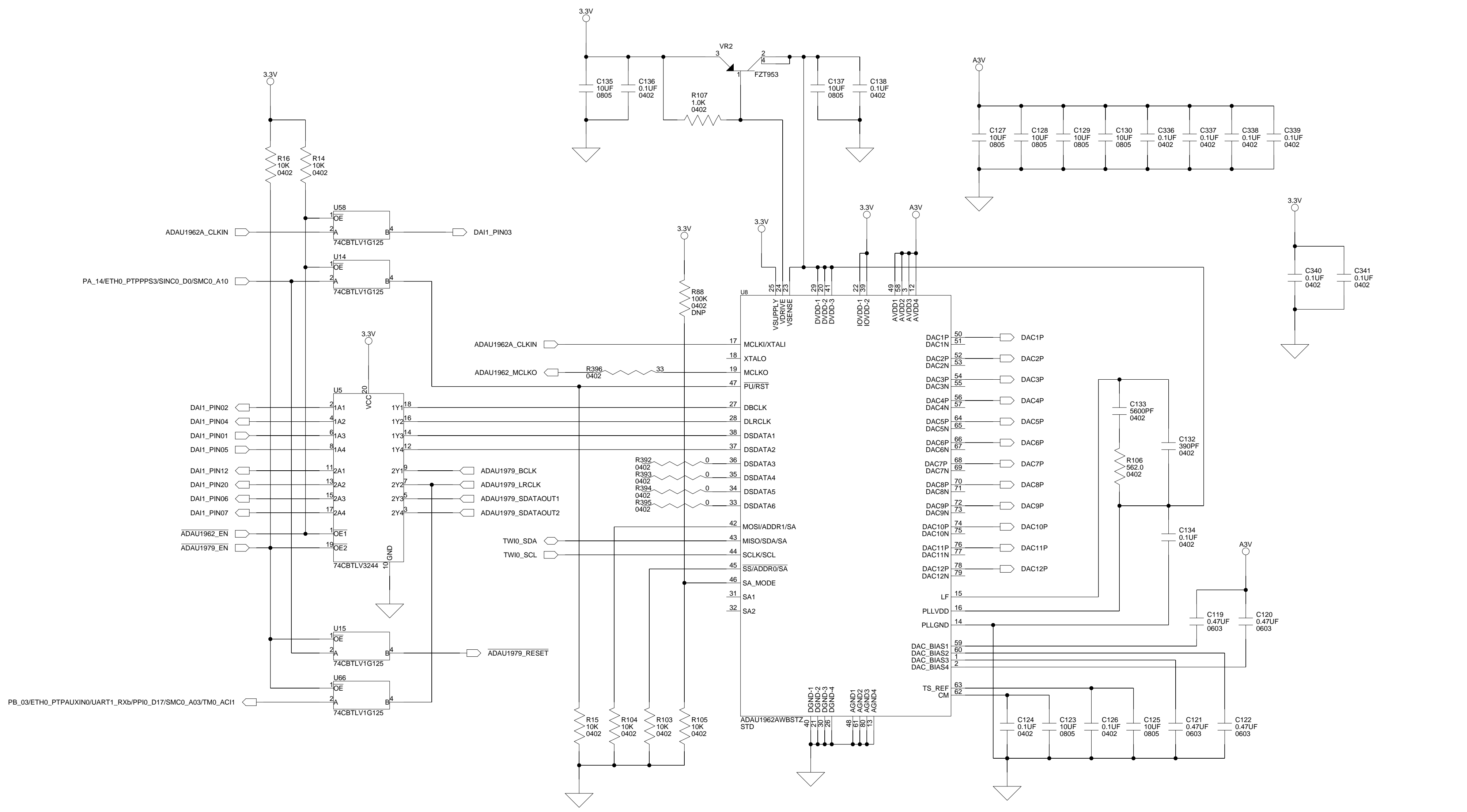


# RMII Mode

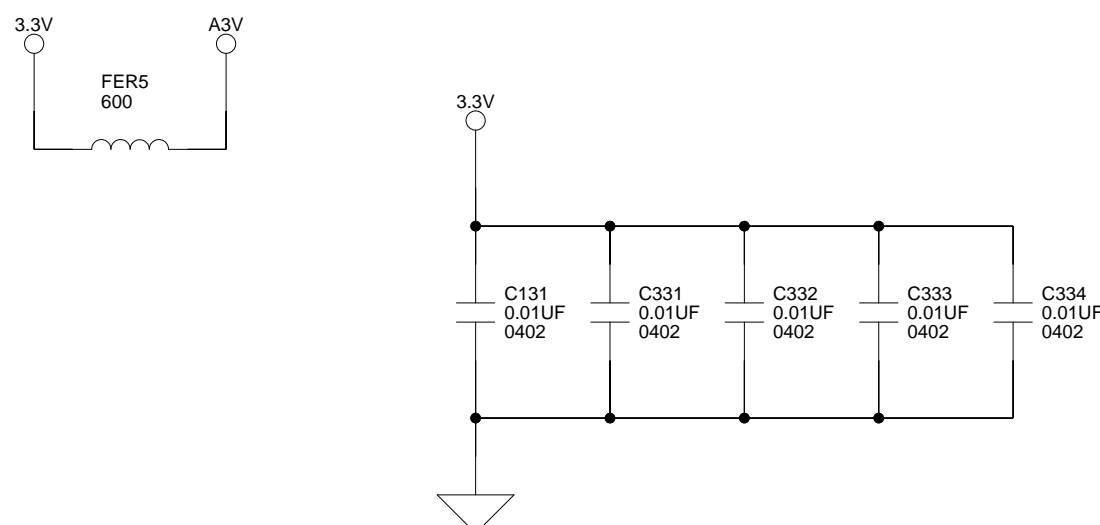
PHY Address 0x01

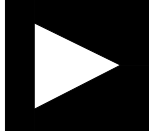


 <b>ANALOG DEVICES</b>		20 Cotton Road Nashua, NH 03063 PH: 1-800-ANALOGD	
		<b>Title</b> ADSP-SC589 EZ-Board DP83848	
<b>Size C</b>	<b>Board No.</b> A0447-2013	<b>Rev</b> 1.1	
<b>Date</b> 4/6/15	<b>Sheet</b> 17		<b>of</b> 29

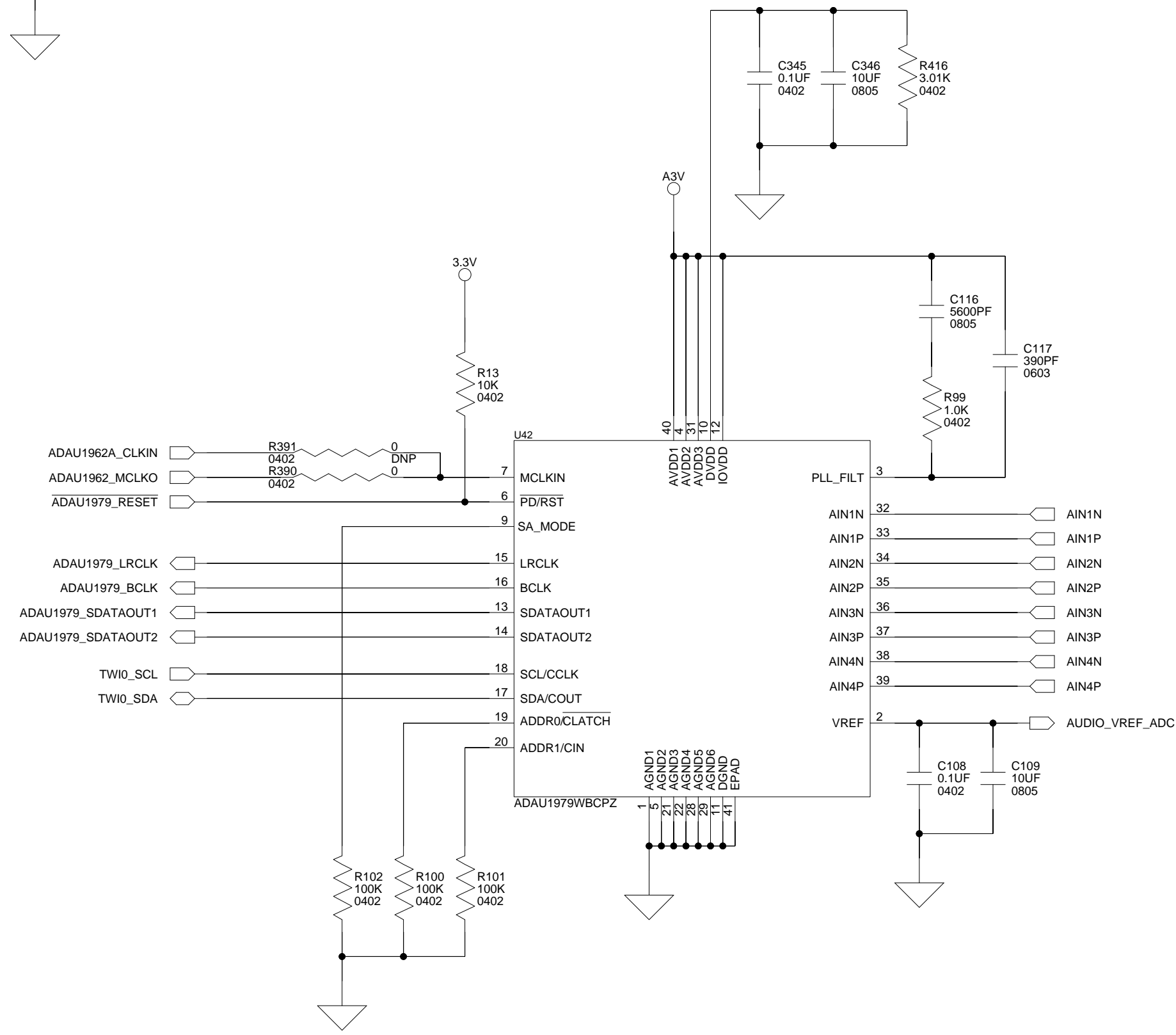
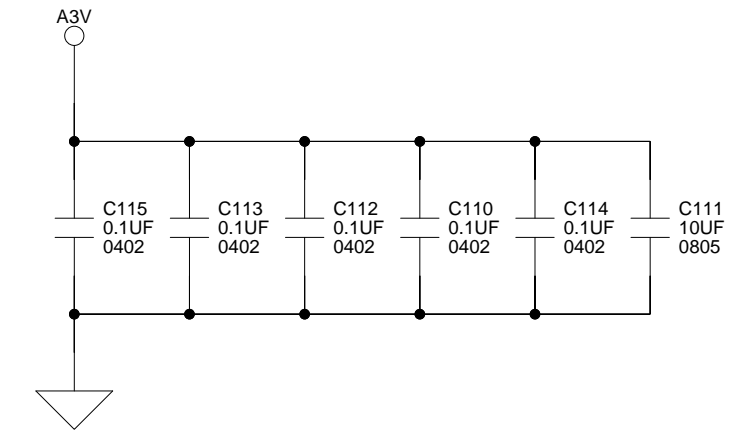
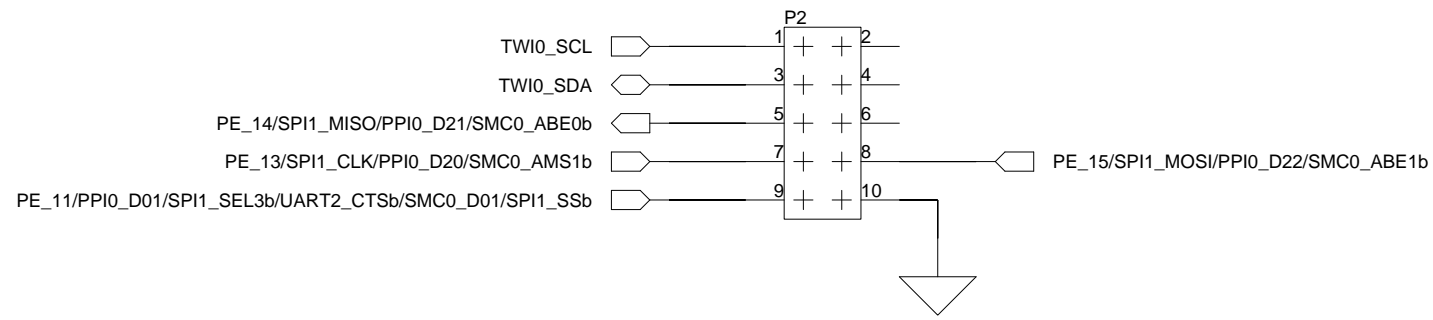


TWI Address 0000100x  
 x is the R/W bit. Read - 1, Write - 0



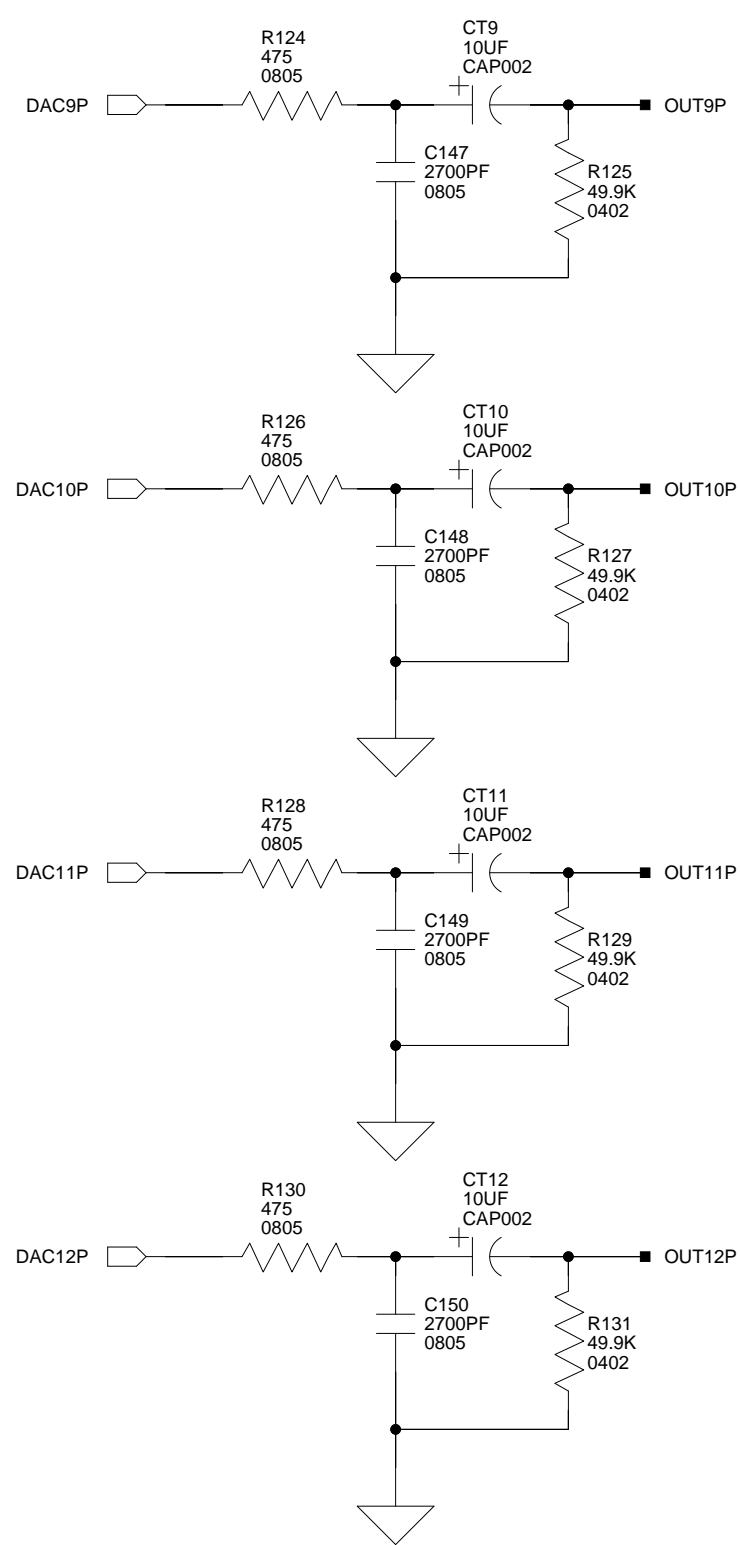
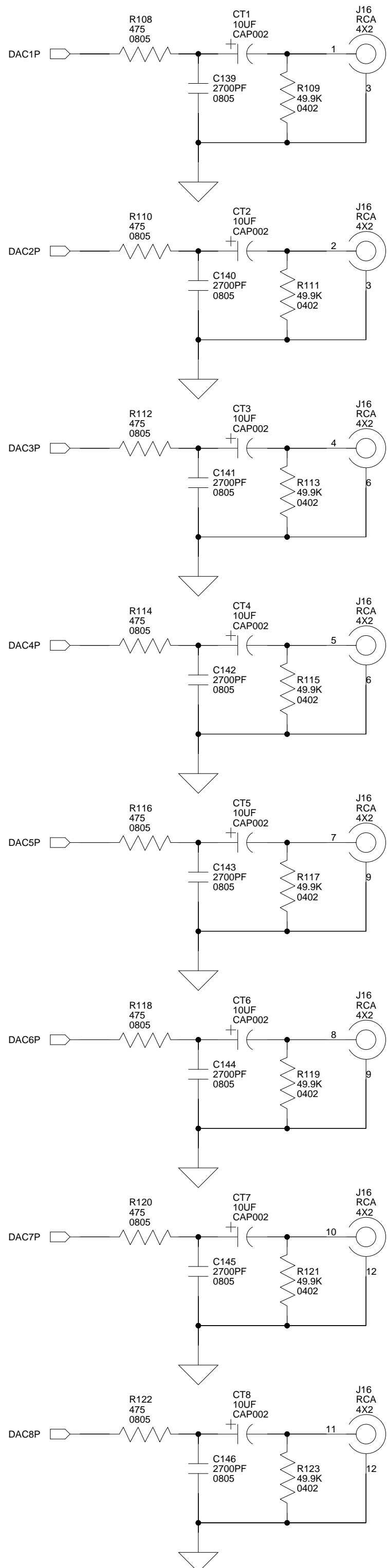
 <b>ANALOG DEVICES</b>		20 Cotton Road Nashua, NH 03063 PH: 1-800-ANALOGD	
		<b>Title</b> ADSP-SC589 EZ-Board ADAU1962A	
<b>Size C</b>	<b>Board No.</b>	<b>A0447-2013</b>	
<b>Date</b>	4/6/15	<b>Sheet</b>	18 of 29
		<b>Rev</b>	<b>1.1</b>

Sigma Studio

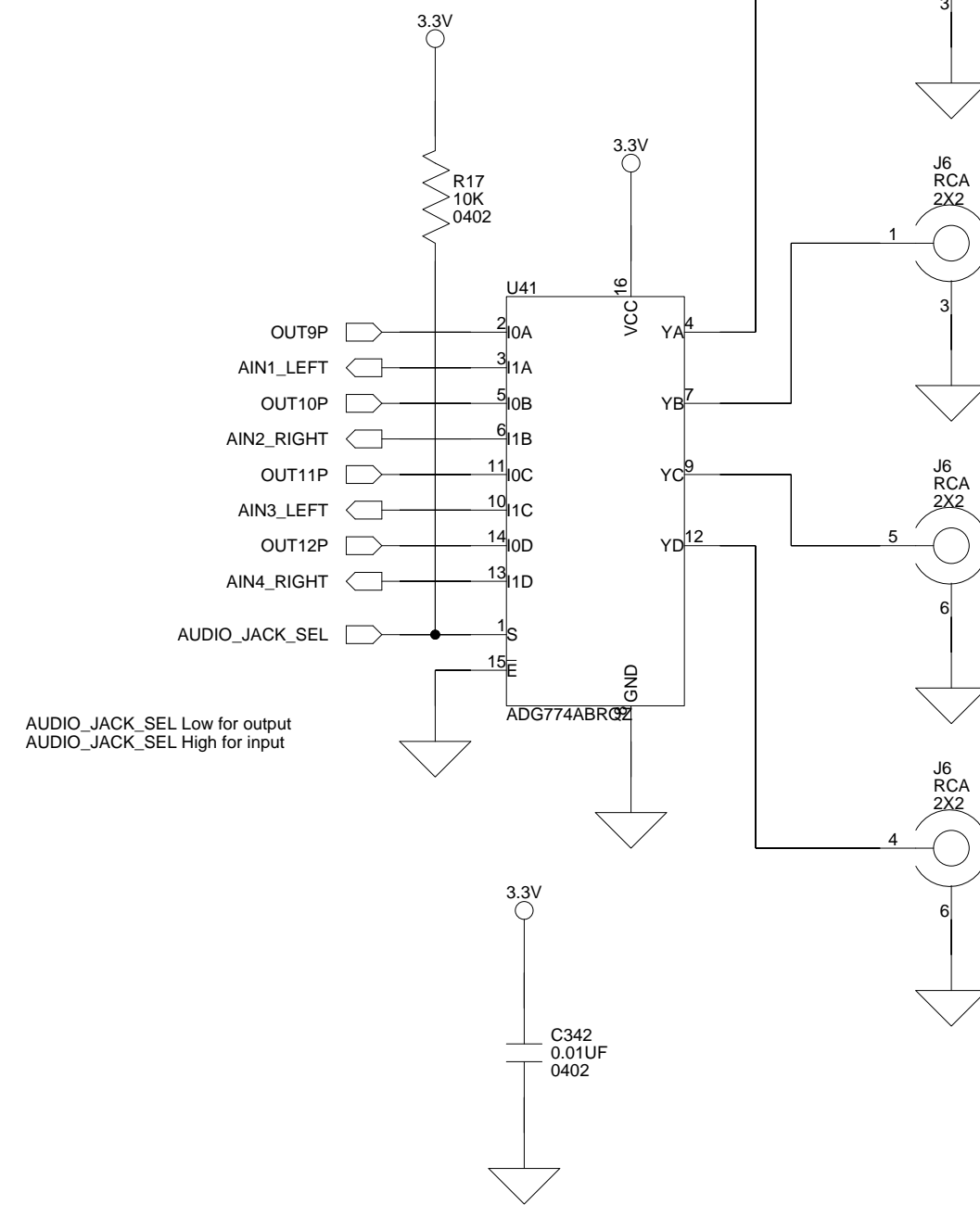


TWI Address 0010001x  
 x is the R/W bit. Read - 1, Write - 0

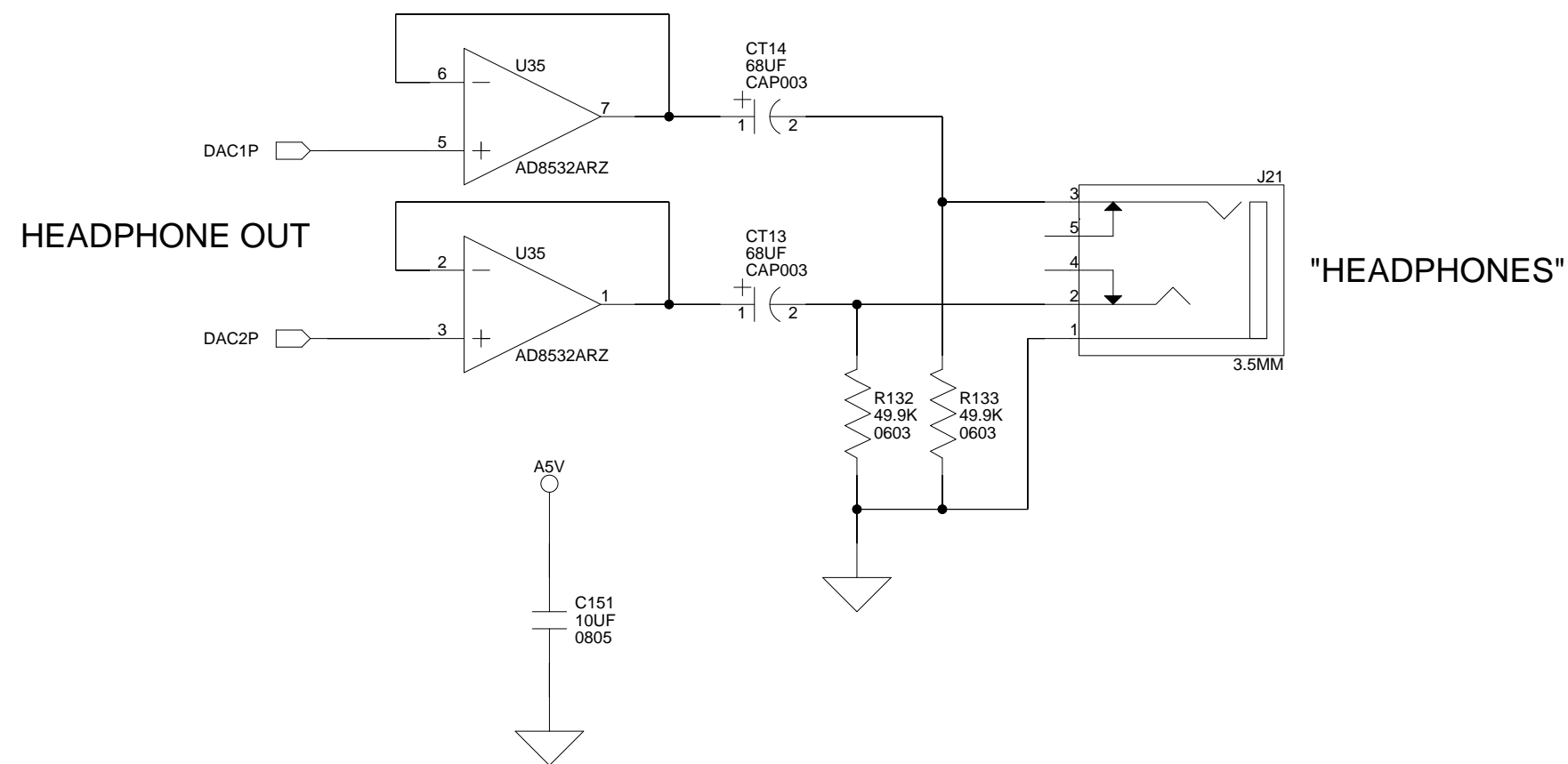
		20 Cotton Road Nashua, NH 03063 PH: 1-800-ANALOGD	
		<b>Title</b> ADSP-SC589 EZ-Board ADAU1979	
<b>Size C</b>	<b>Board No.</b> A0447-2013	<b>Rev</b> 1.1	
<b>Date</b> 4/6/15	<b>Sheet</b> 19		<b>of</b> 29



"INPUT"

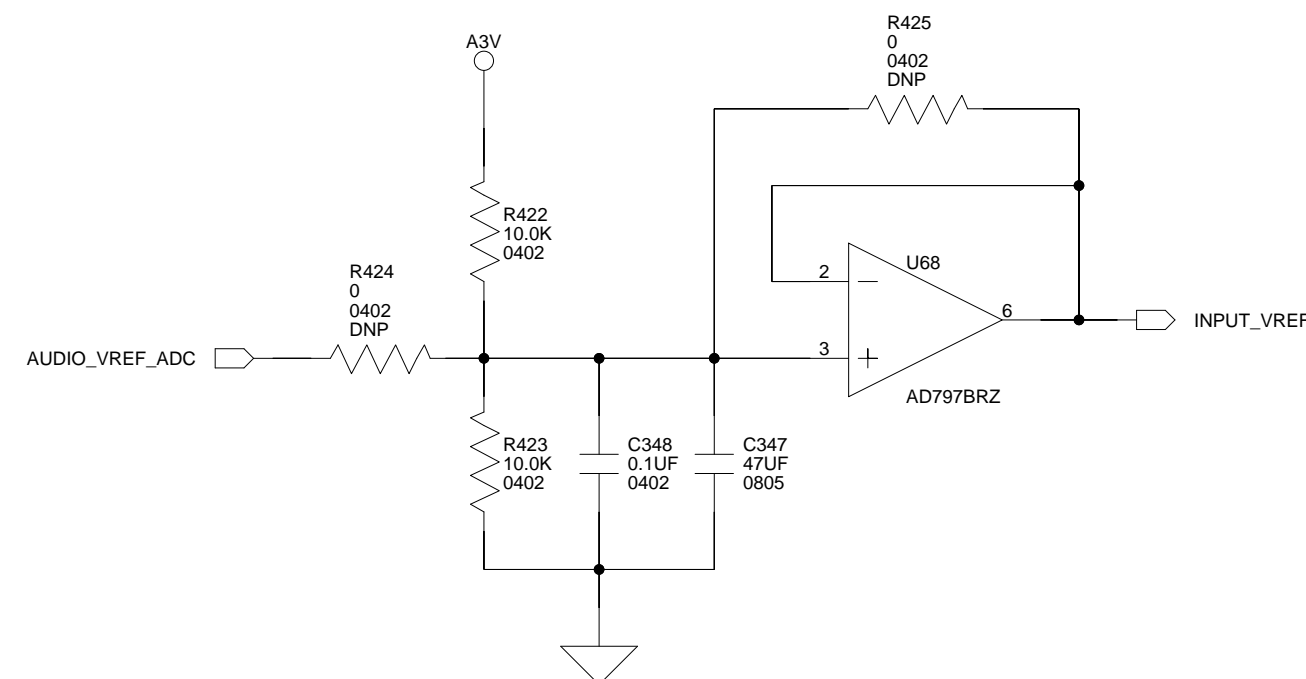
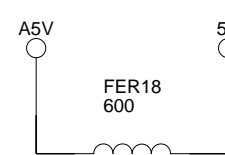
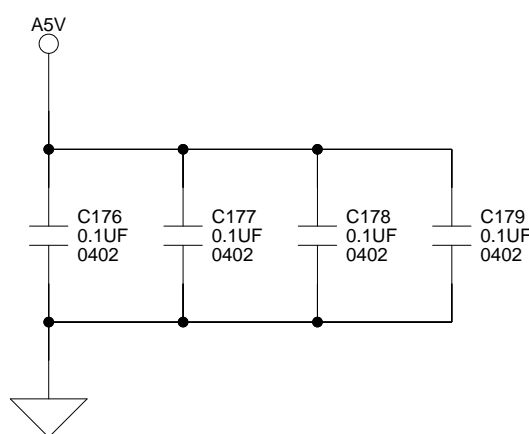
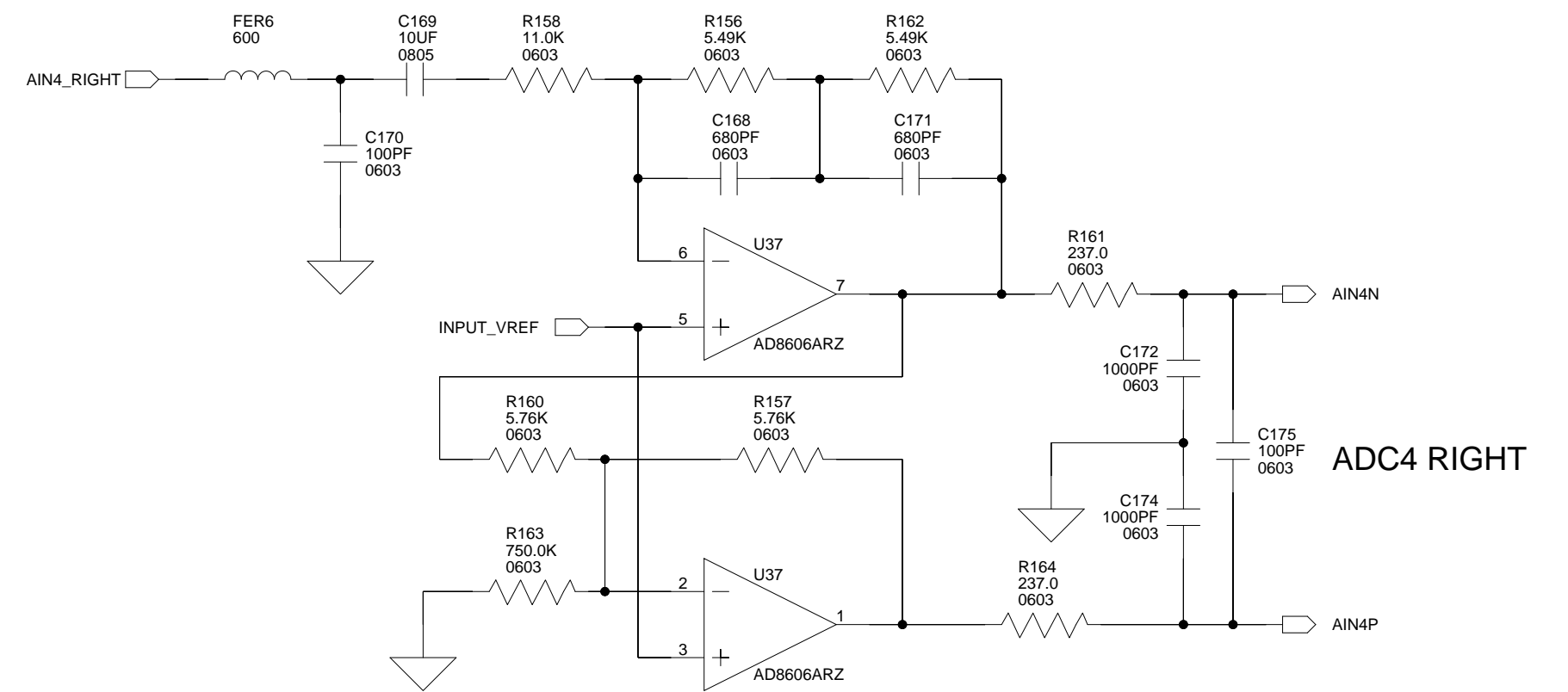
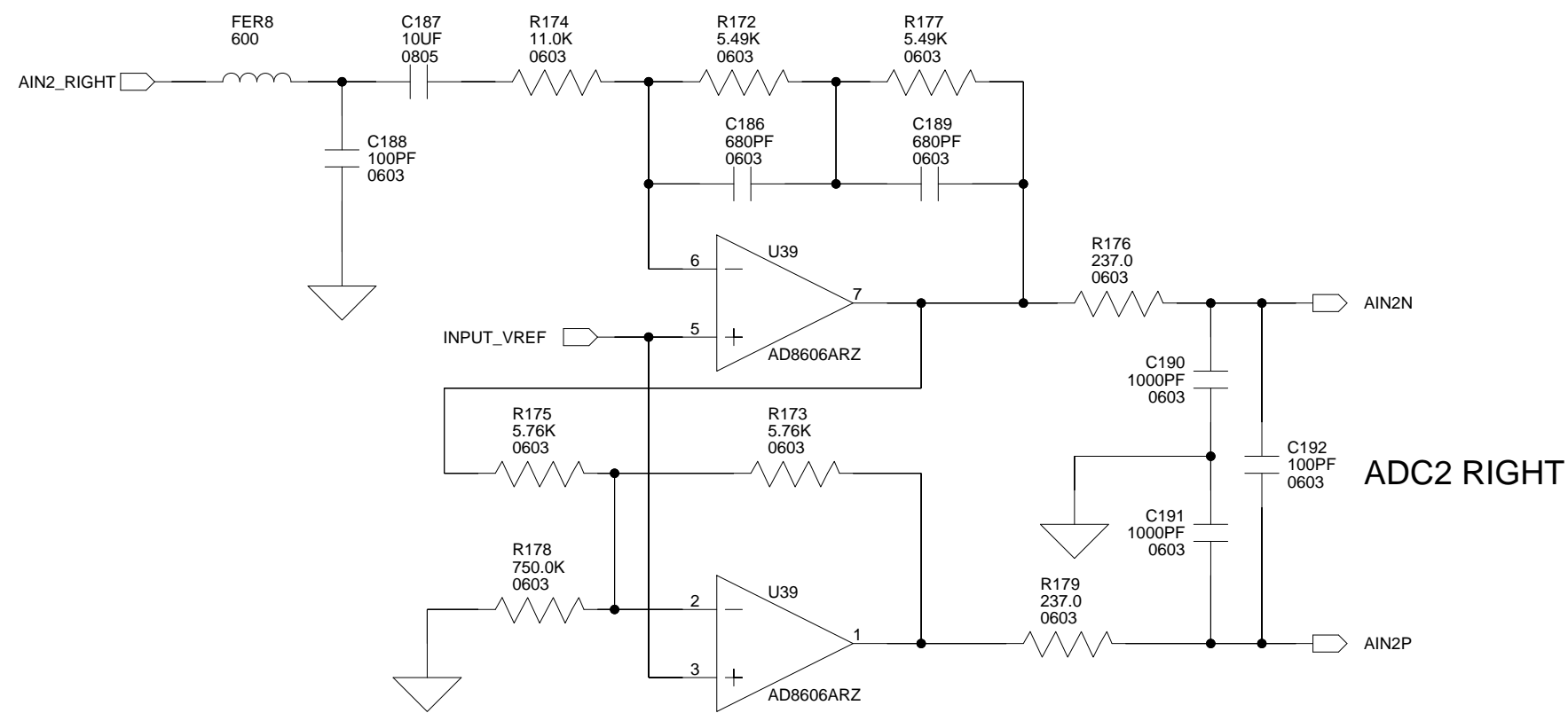
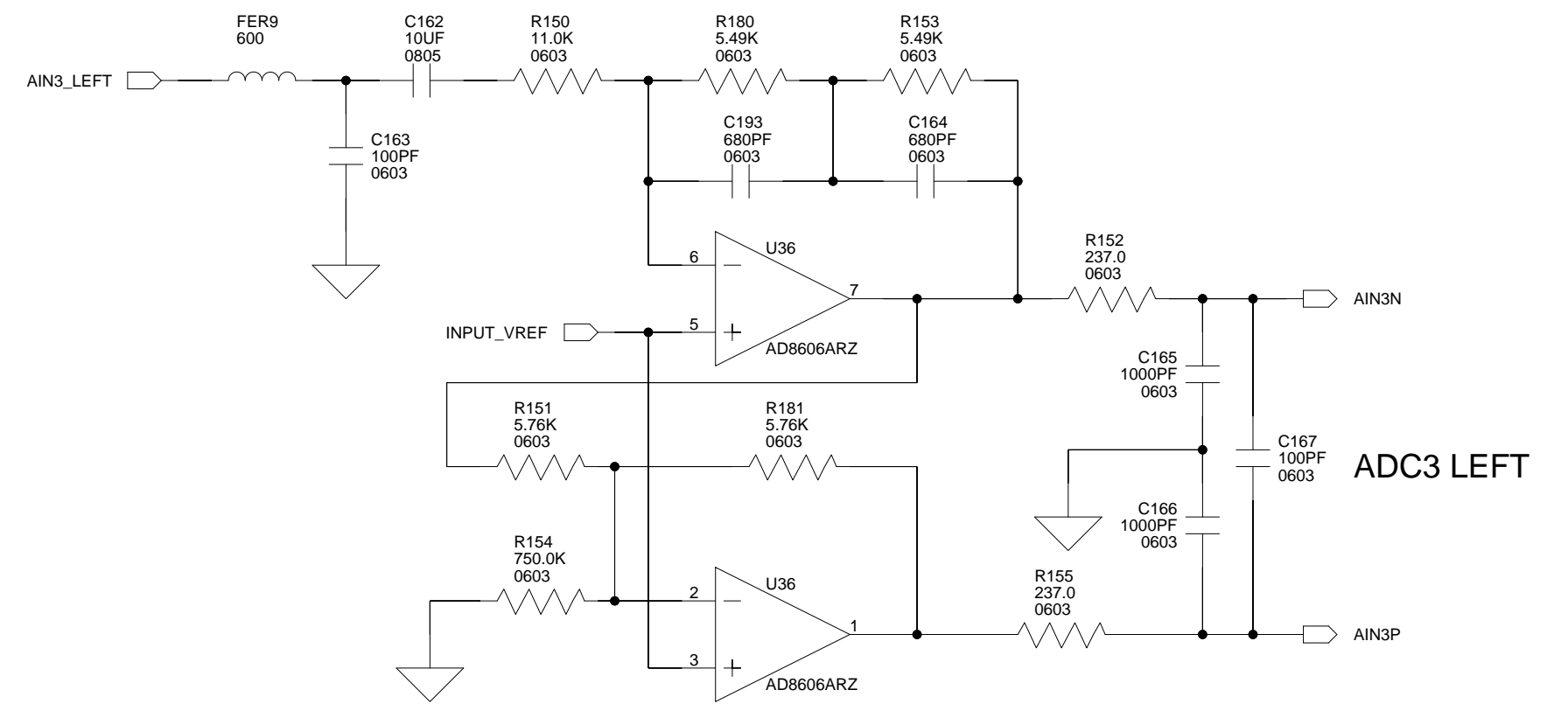
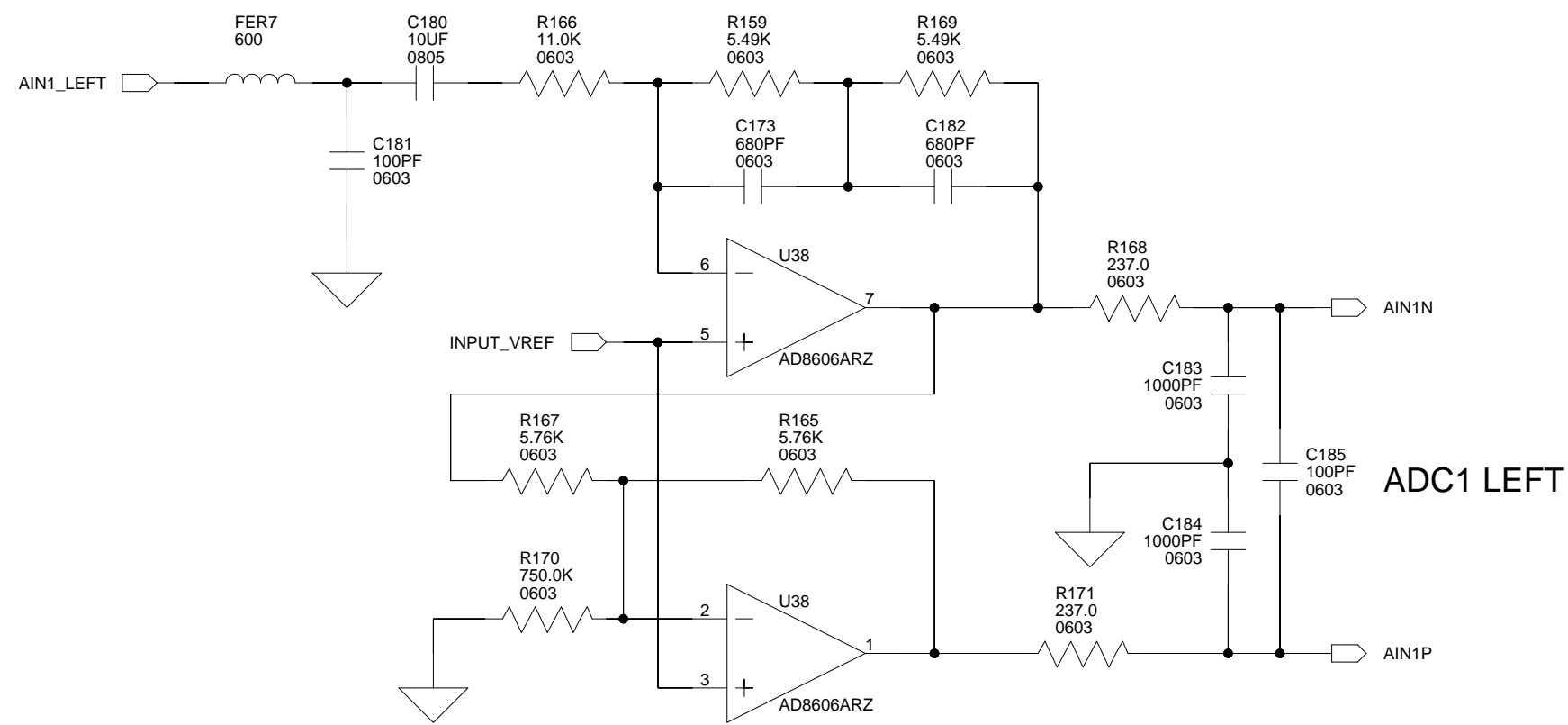



"INPUT/OUTPUT"



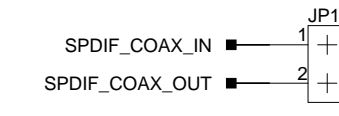
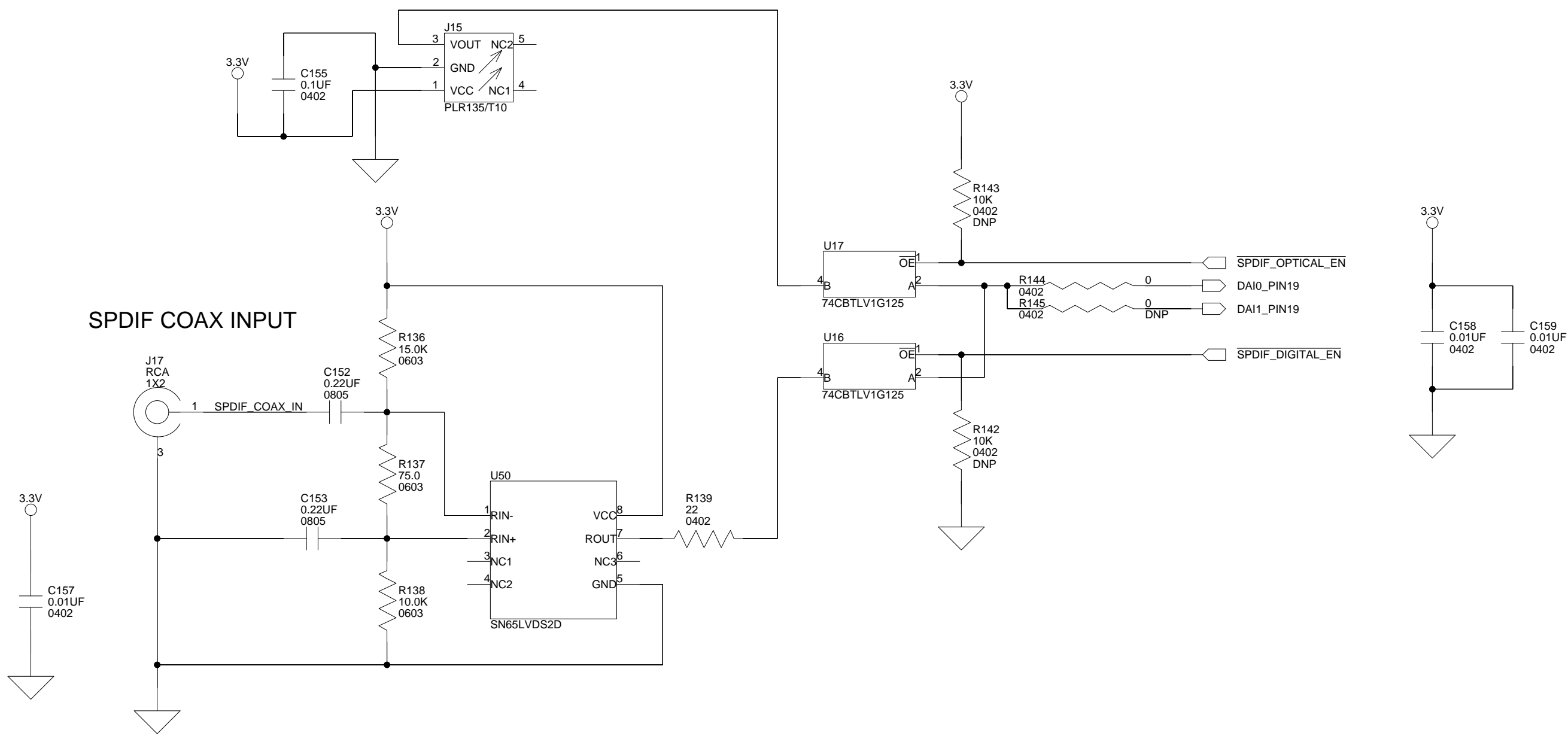
"HEADPHONES"

		20 Cotton Road Nashua, NH 03063 PH: 1-800-ANALOGD	
		<b>Title</b> ADSP-SC589 EZ-Board Audio Connectors	
<b>Size C</b>	<b>Board No.</b> A0447-2013	<b>Rev</b> 1.1	
<b>Date</b> 4/6/15	<b>Sheet</b> 20	<b>of</b> 29	

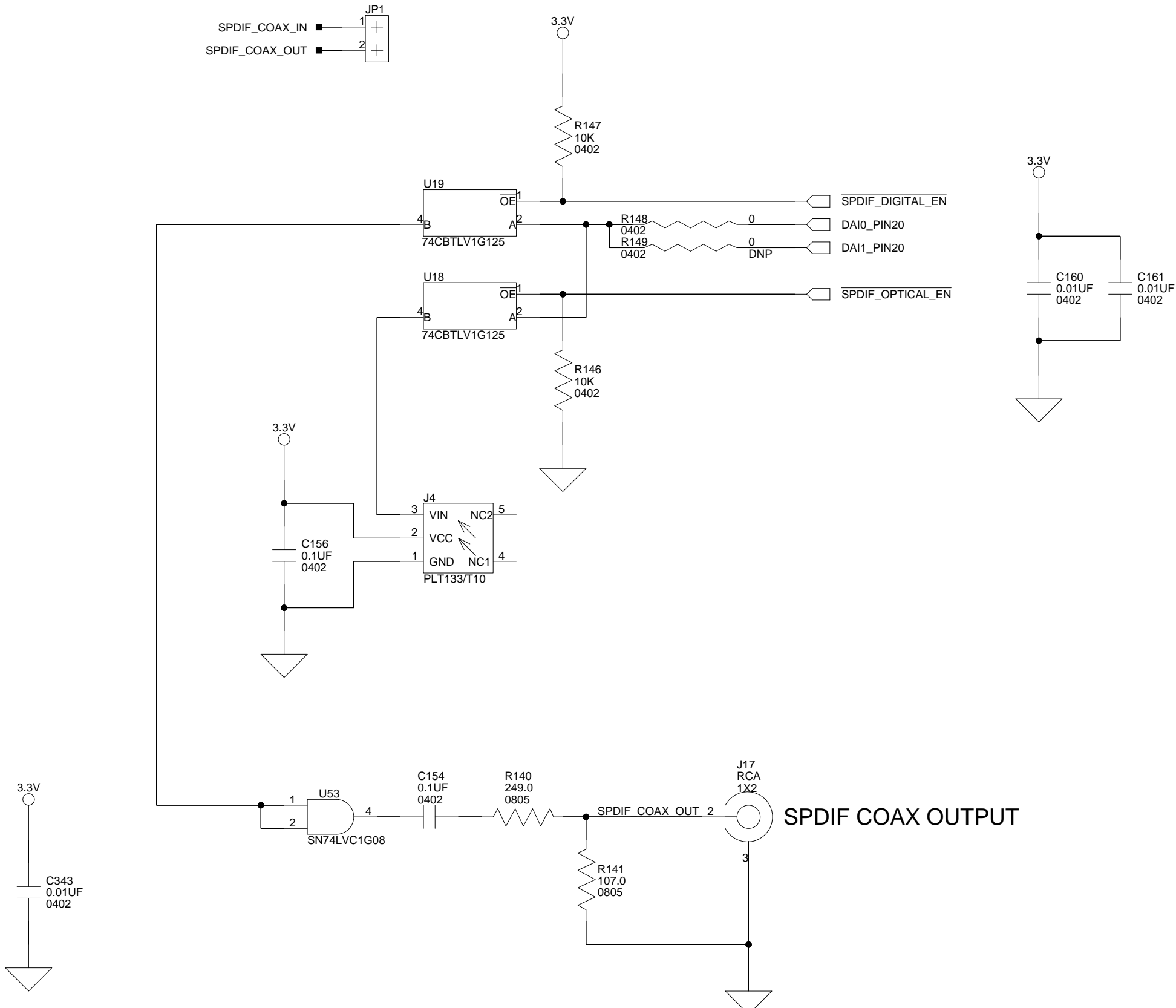


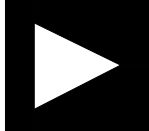
		20 Cotton Road Nashua, NH 03063 PH: 1-800-ANALOGD	
		<b>Title</b> ADSP-SC589 EZ-Board Audio Input	
<b>Size</b> C	<b>Board No.</b> A0447-2013	<b>Rev</b> 1.1	
<b>Date</b> 4/6/15	<b>Sheet</b> 21 <b>of</b> 29		

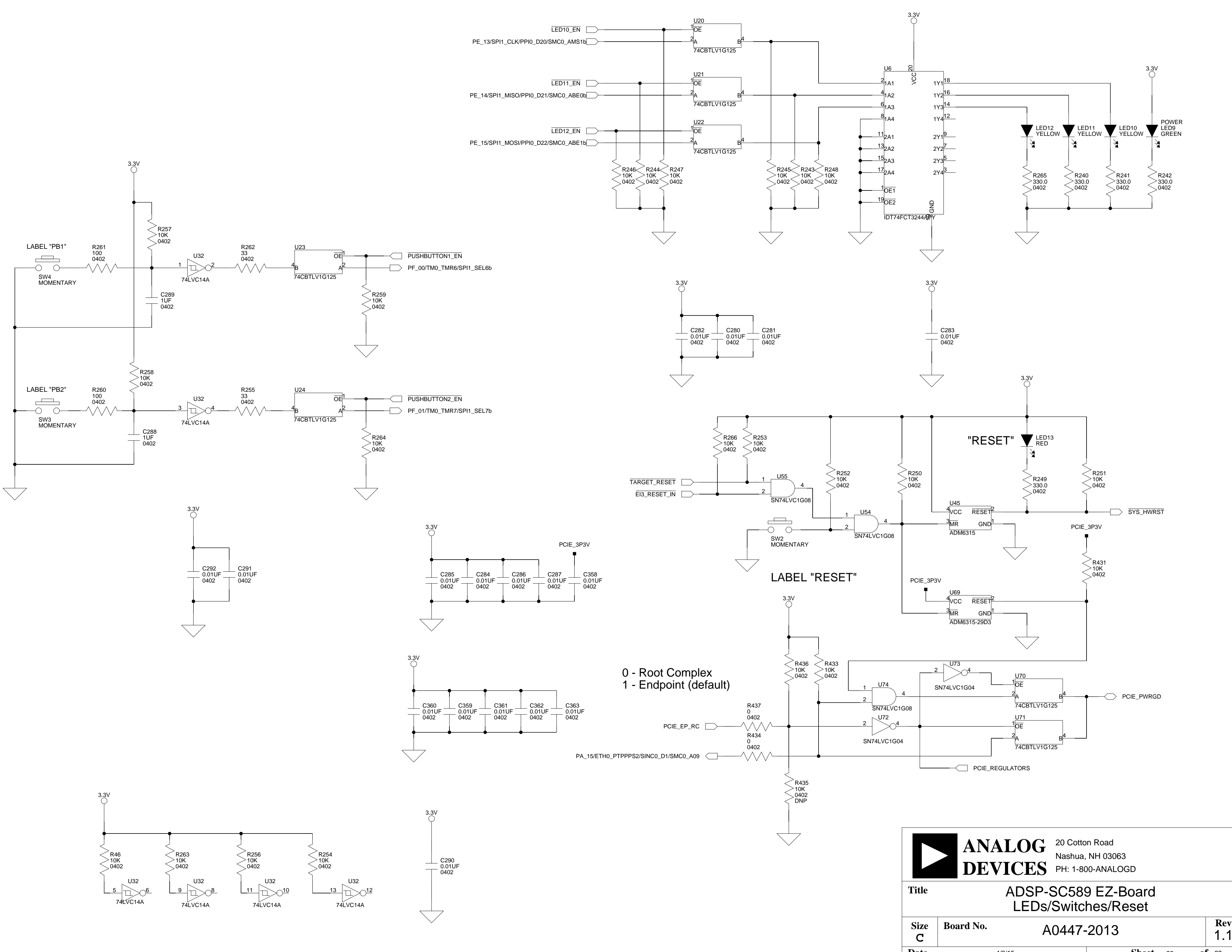
SPDIF COAX INPUT

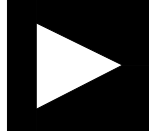


SPDIF COAX OUTPUT

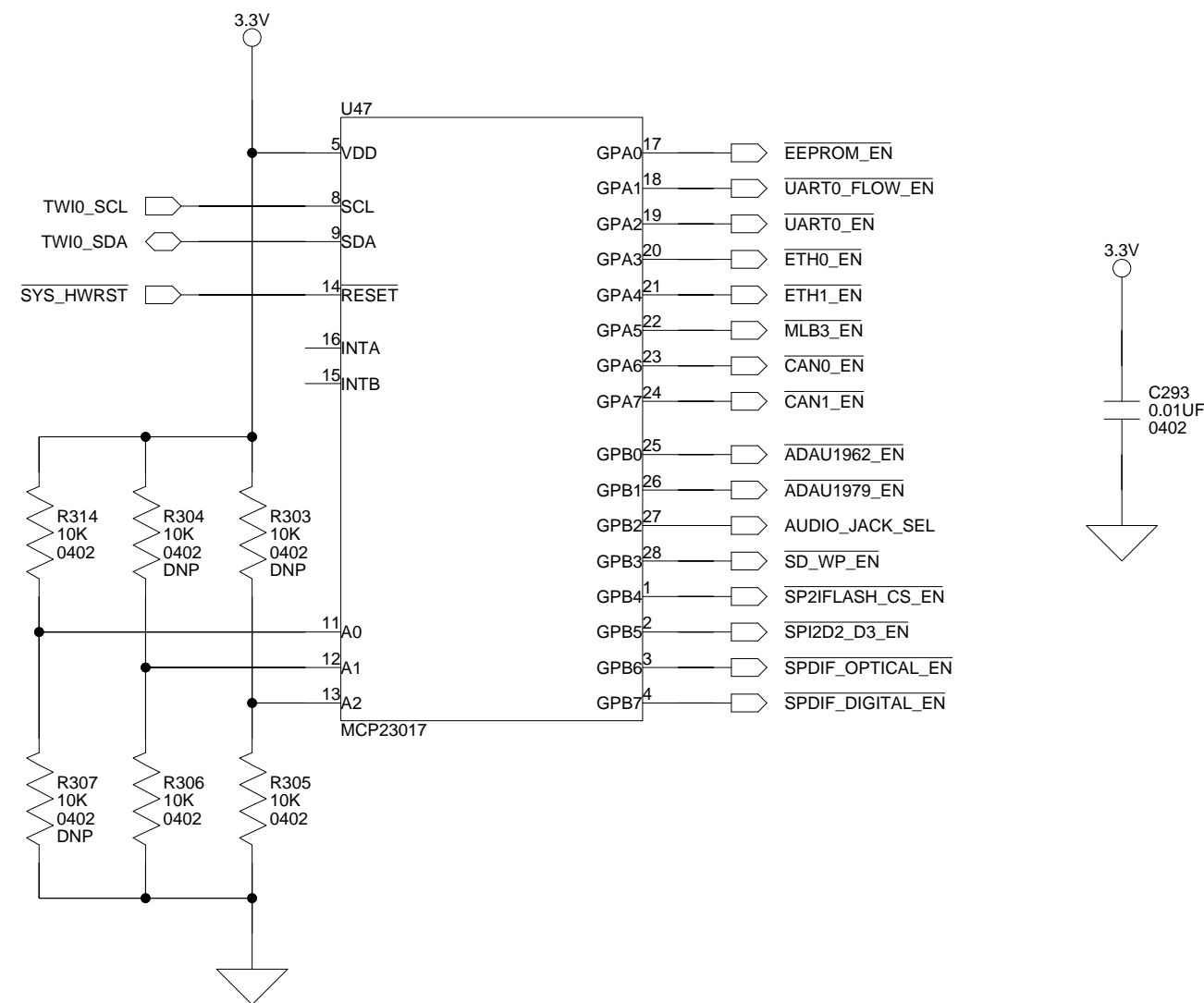


 <b>ANALOG DEVICES</b>		20 Cotton Road Nashua, NH 03063 PH: 1-800-ANALOGD	
		Title <b>ADSP-SC589 EZ-Board SPDIF</b>	
Size <b>C</b>	Board No. <b>A0447-2013</b>	Rev <b>1.1</b>	
Date <b>4/6/15</b>	Sheet <b>22</b>	of <b>29</b>	

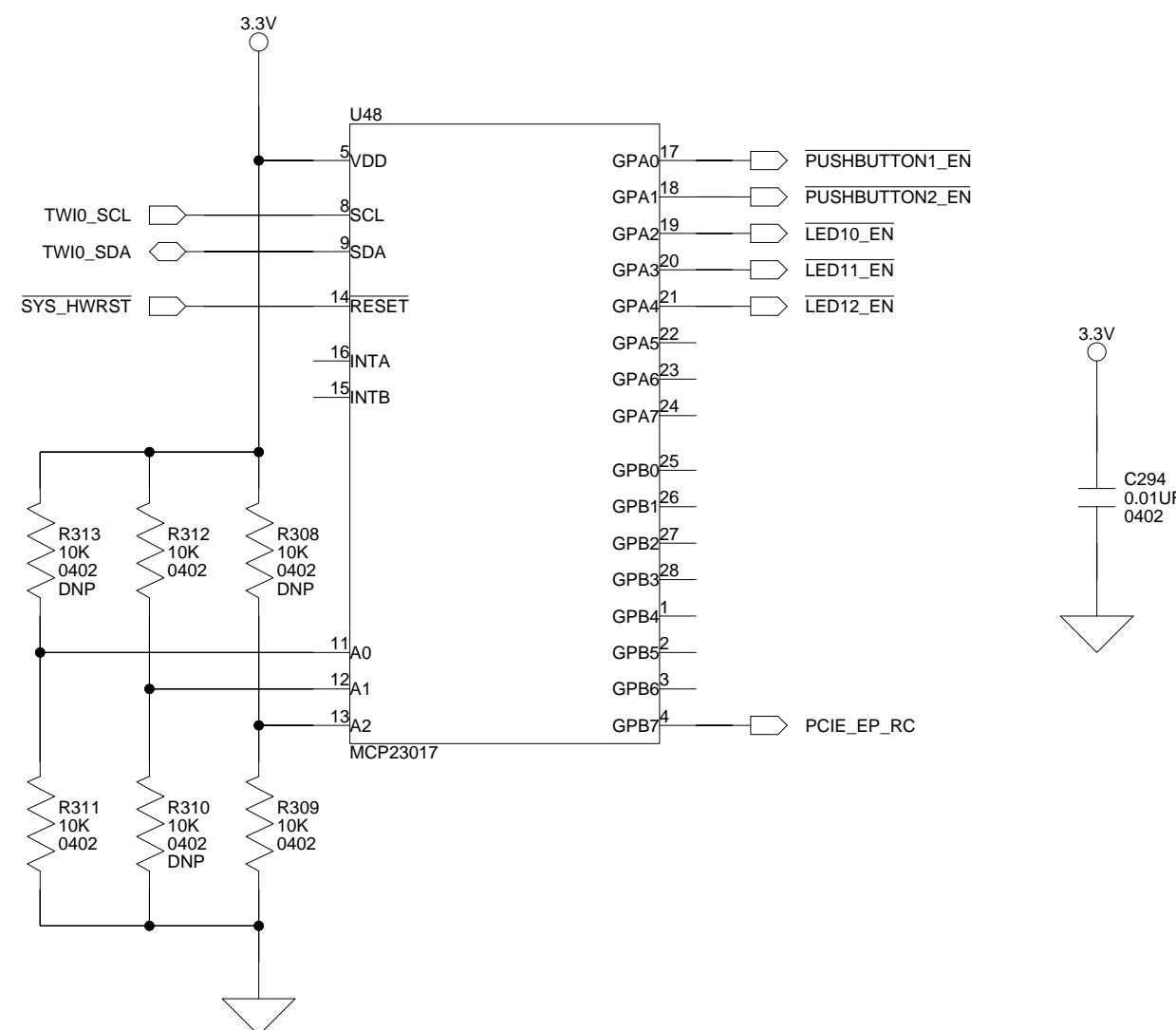


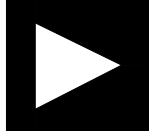
 <b>ANALOG DEVICES</b>		20 Cotton Road Nashua, NH 03063 PH: 1-800-ANALOGD	
		<b>Title</b> ADSP-SC589 EZ-Board LEDs/Switches/Reset	
<b>Size C</b>	<b>Board No.</b> A0447-2013	<b>Rev</b> 1.1	
<b>Date</b> 4/6/15	<b>Sheet</b> 23	<b>of</b> 29	

TWI Address 0100001x  
 x is the R/W bit. Read - 1, Write - 0

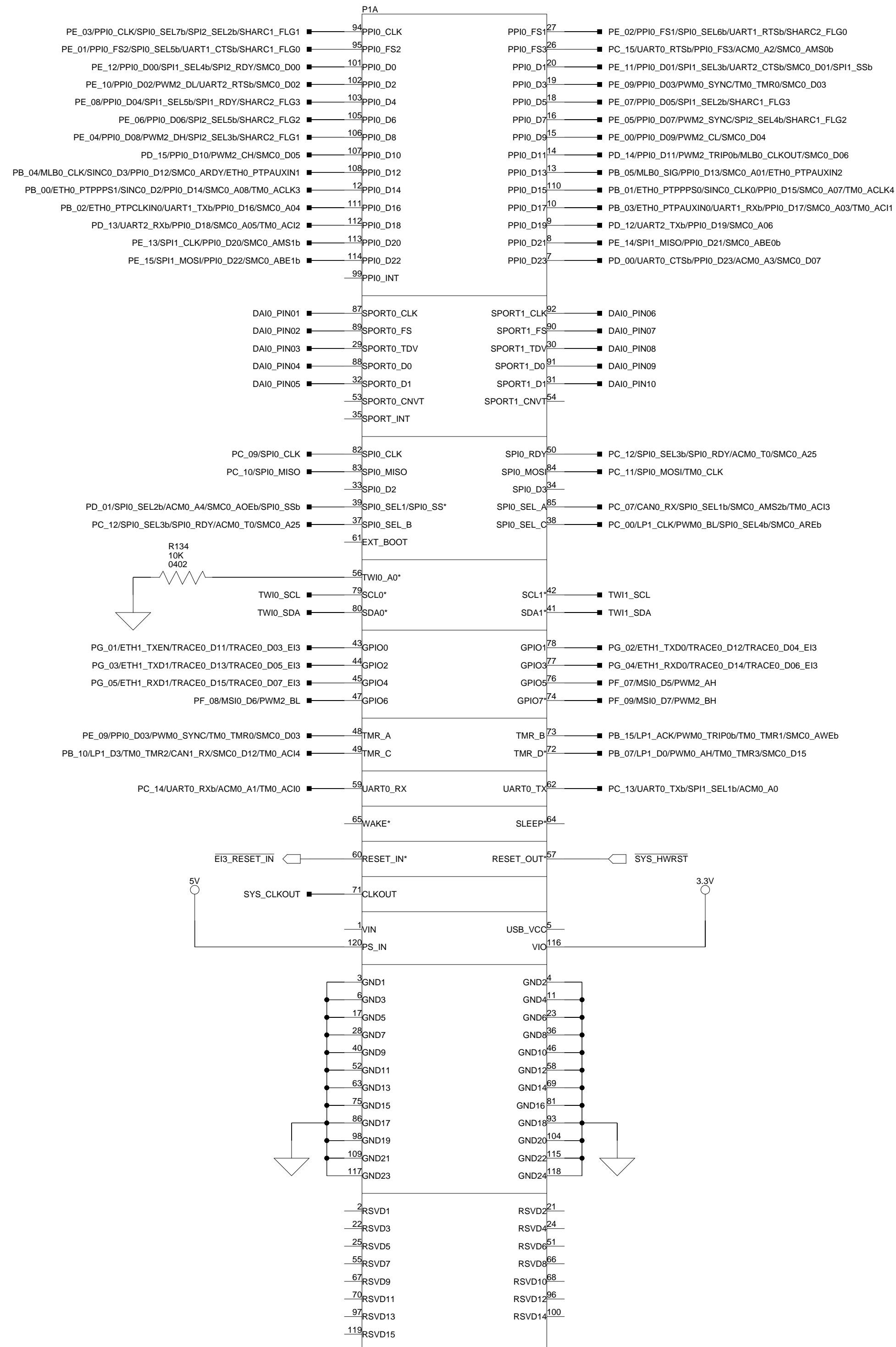


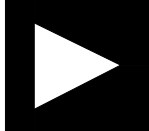
TWI Address 0100010x  
 x is the R/W bit. Read - 1, Write - 0



 <b>ANALOG DEVICES</b>		20 Cotton Road Nashua, NH 03063 PH: 1-800-ANALOGD	
		<b>Title</b> ADSP-SC589 EZ-Board SoftConfig	
<b>Size C</b>	<b>Board No.</b> A0447-2013	<b>Rev</b> 1.1	
<b>Date</b> 4/6/15	<b>Sheet</b> 24		<b>of</b> 29

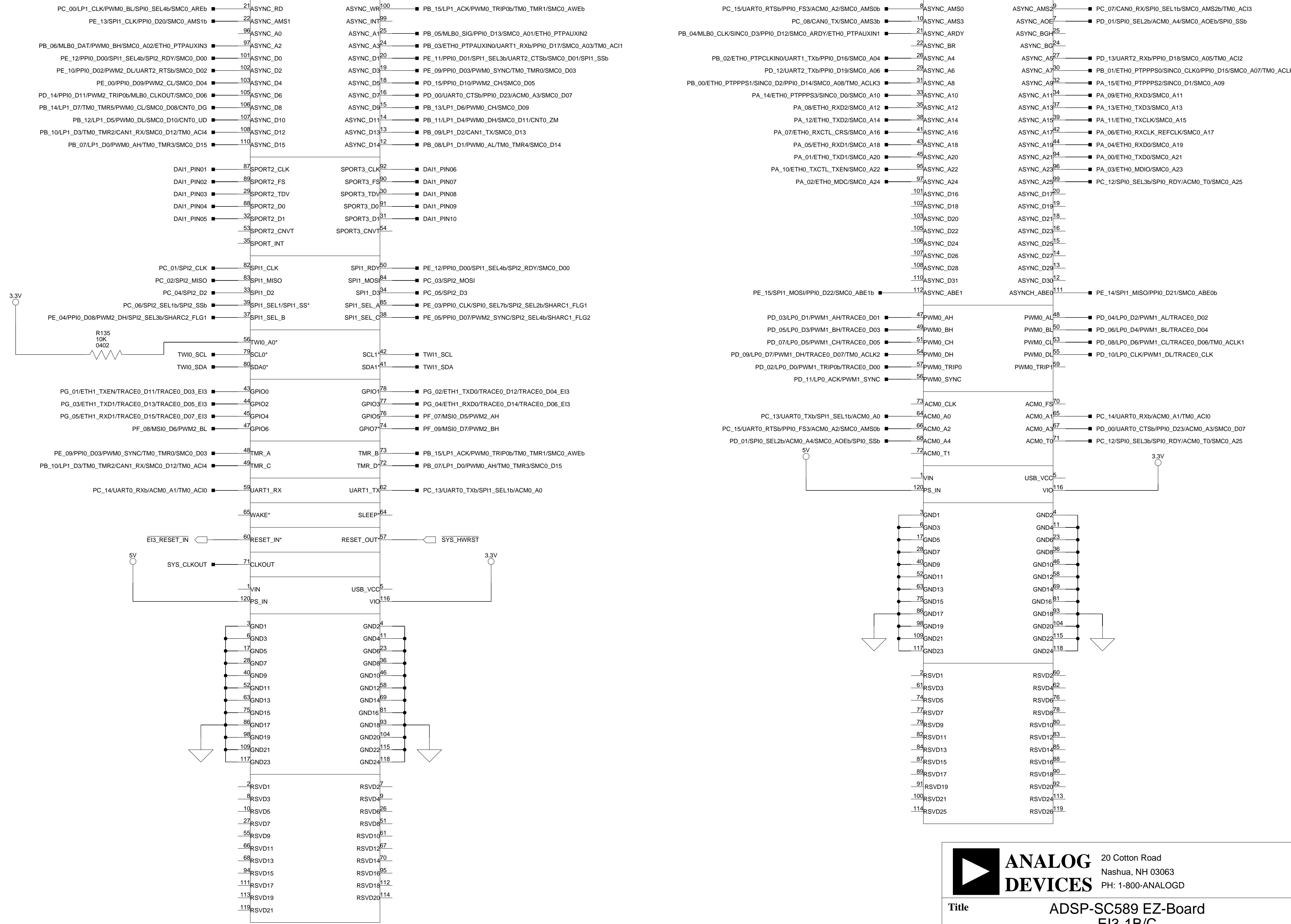


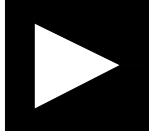


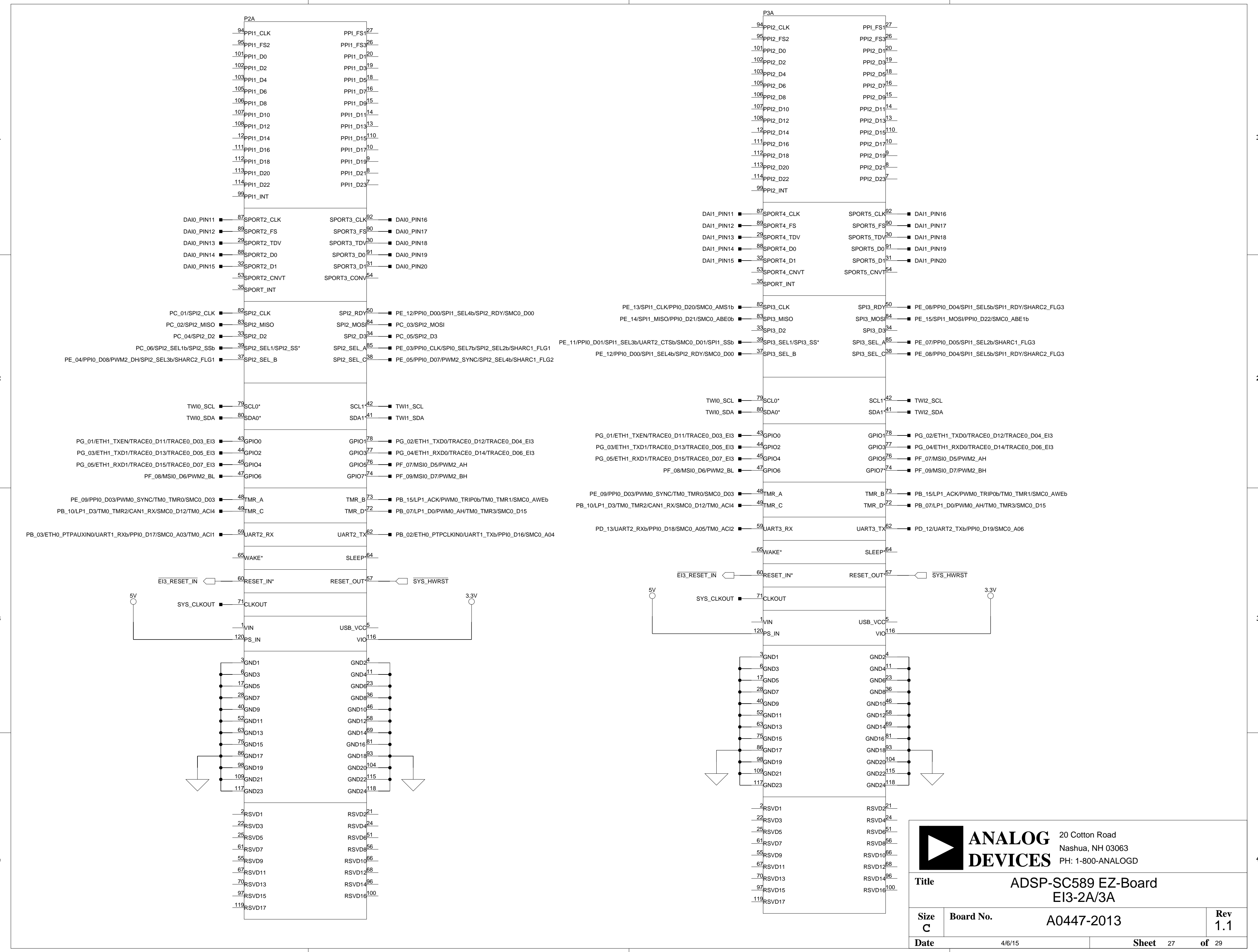
 <b>ANALOG DEVICES</b>		20 Cotton Road Nashua, NH 03063 PH: 1-800-ANALOGD	
		<b>Title</b> ADSP-SC589 EZ-Board EI3-1A	
<b>Size C</b>	<b>Board No.</b> A0447-2013	<b>Rev</b> 1.1	
<b>Date</b> 4/6/15	<b>Sheet</b> 25		<b>of</b> 29

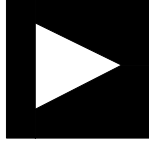
P1B

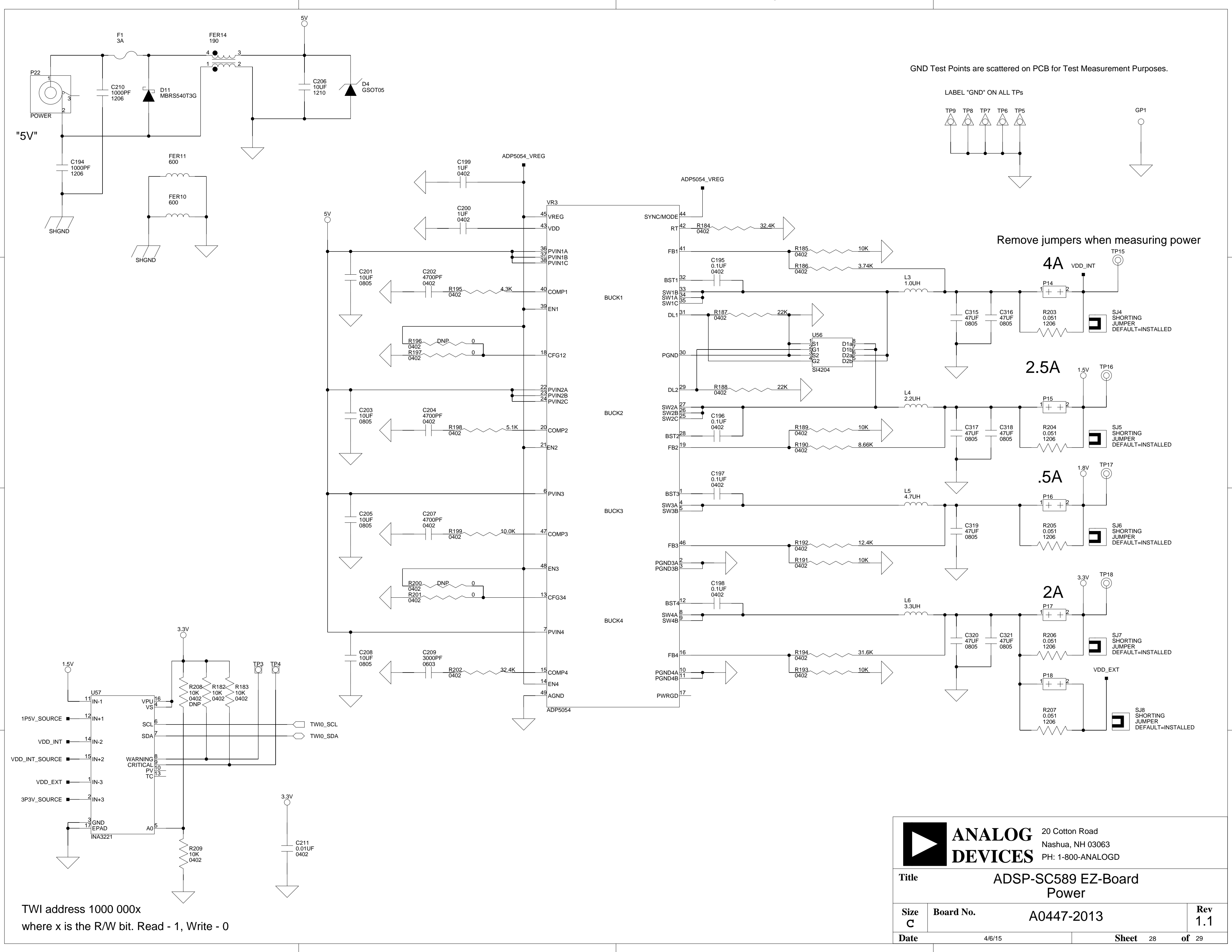
P1C



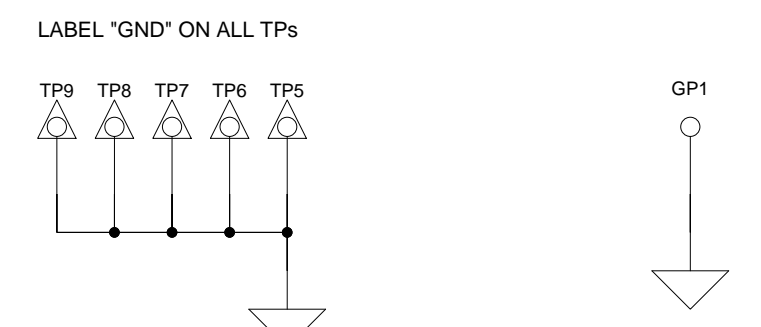
 <b>ANALOG DEVICES</b>		20 Cotton Road Nashua, NH 03063 PH: 1-800-ANALOGD	
		<b>Title</b> ADSP-SC589 EZ-Board EI3-1B/C	
<b>Size C</b>	<b>Board No.</b> A0447-2013	<b>Rev</b> 1.1	
<b>Date</b> 4/6/15	<b>Sheet</b> 26		<b>of</b> 29



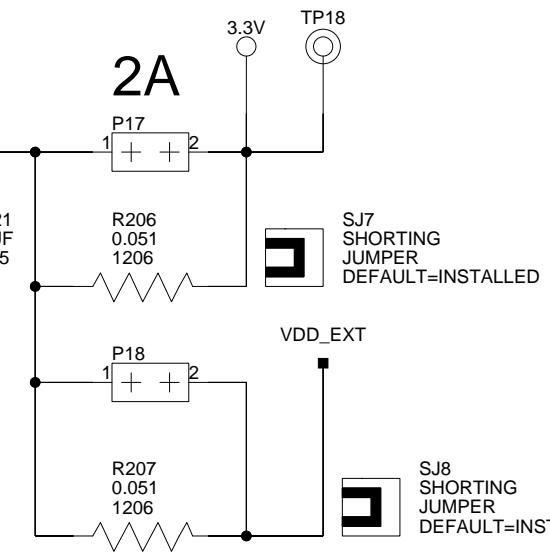
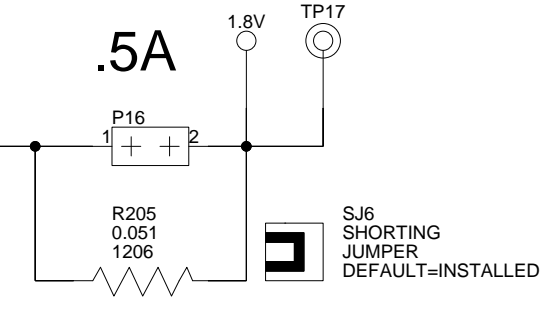
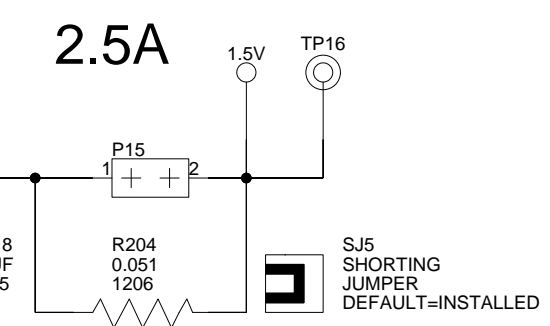
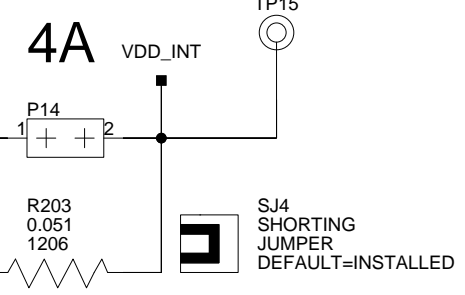
 <b>ANALOG DEVICES</b>		20 Cotton Road Nashua, NH 03063 PH: 1-800-ANALOGD	
		<b>Title</b> ADSP-SC589 EZ-Board EI3-2A/3A	
<b>Size C</b>	<b>Board No.</b> A0447-2013	<b>Rev</b> 1.1	
<b>Date</b>	4/6/15	<b>Sheet</b> 27	<b>of</b> 29



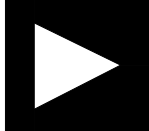
GND Test Points are scattered on PCB for Test Measurement Purposes.

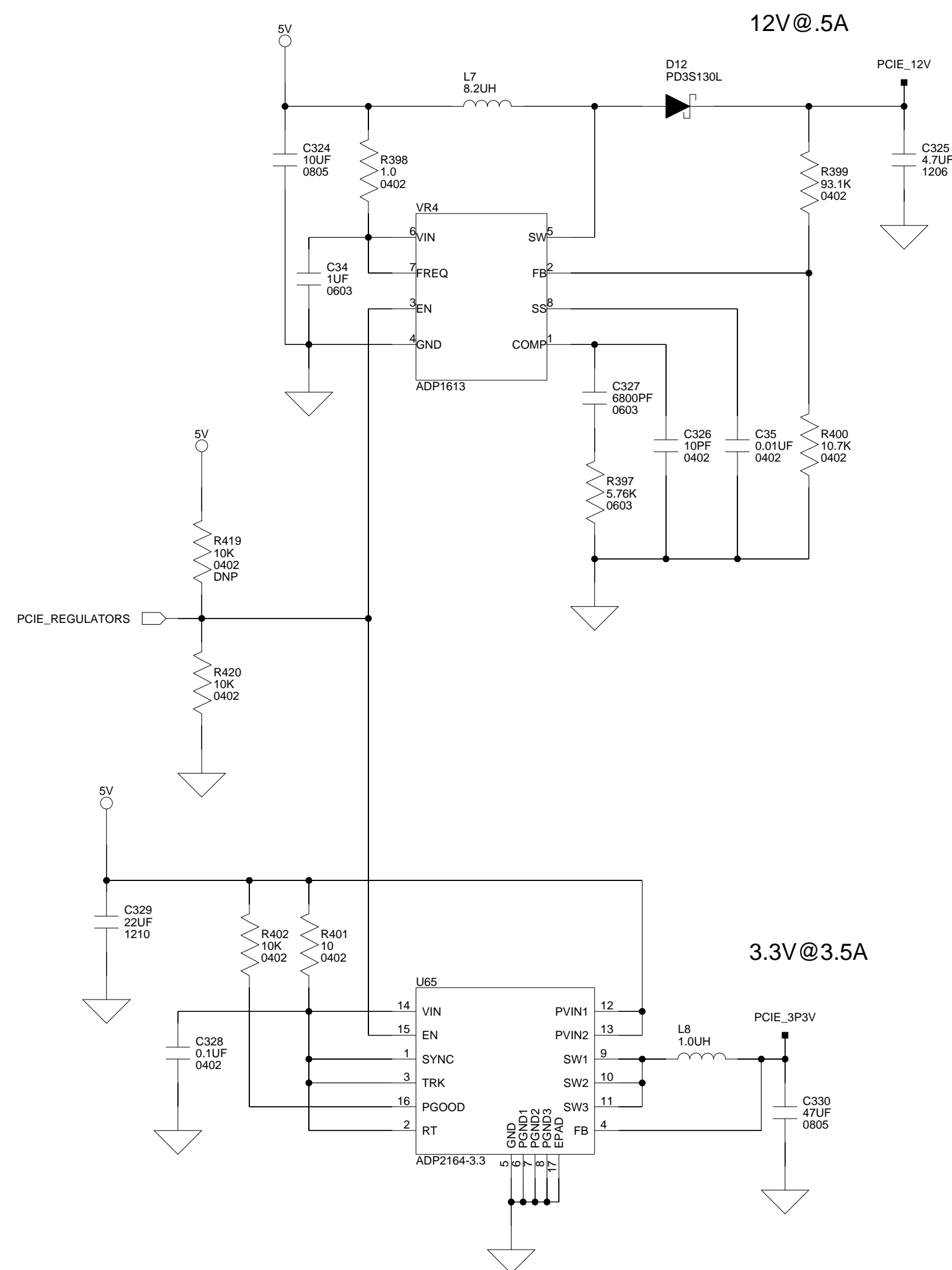


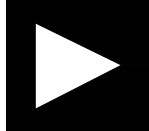
Remove jumpers when measuring power



TWI address 1000 000x  
where x is the R/W bit. Read - 1, Write - 0

 <b>ANALOG DEVICES</b>		20 Cotton Road Nashua, NH 03063 PH: 1-800-ANALOGD	
		<b>Title</b> ADSP-SC589 EZ-Board Power	
<b>Size C</b>	<b>Board No.</b> A0447-2013	<b>Rev</b> 1.1	
<b>Date</b> 4/6/15	<b>Sheet</b> 28		<b>of</b> 29



 <b>ANALOG DEVICES</b>		20 Cotton Road Nashua, NH 03063 PH: 1-800-ANALOGD	
		<b>Title</b> ADSP-SC589 EZ-Board PCIe Power	
<b>Size C</b>	<b>Board No.</b> A0447-2013	<b>Rev</b> 1.1	
<b>Date</b> 4/6/15	<b>Sheet</b> 29		<b>of</b> 29