

NOTES, UNLESS OTHERWISE SPECIFIED:

1. RESISTANCE VALUES IN OHMS.
2. CAPACITANCE VALUES IN MICROFARADS.
3. REFERENCE DESIGNATORS USED:
4. ALL 0.1 uF AND 0.01uF CAPACITORS ARE DECOUPLING CAPS UNLESS OTHERWISE NOTED. THEY ARE SHOWN ON THE PAGE WITH THE INTEGRATED CIRCUITS THEY SHOULD BE PLACED NEAR.
5. NHET1xx means NHET1\_[xx].
6. OBSERVE THE LAYOUT NOTES IN SCHEMATIC.

Changes on RevC:

1. Changed SD card slot
2. R291 and R293 value for Gladiator 1.2V core power
3. Route EMIF D[8:15] to exp connector (missed on RevB)

Changes on RevD:

1. Added n\_channel FET and RC to JTAG nTRST (P07)

Changes on RevE:

1. Added n\_channel FET and RC to JTAG nTRST (P07)

SCHEMATIC CONTENTS

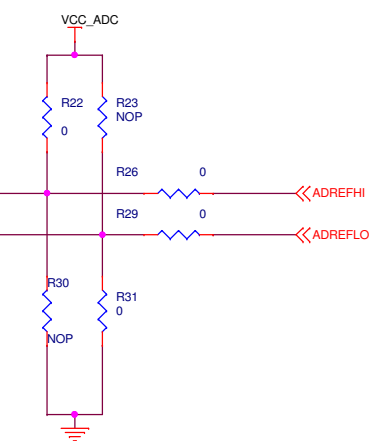
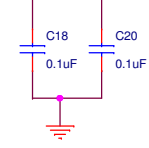
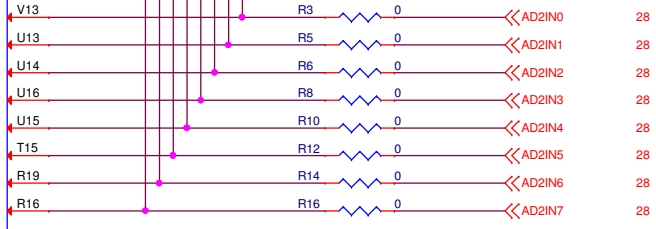
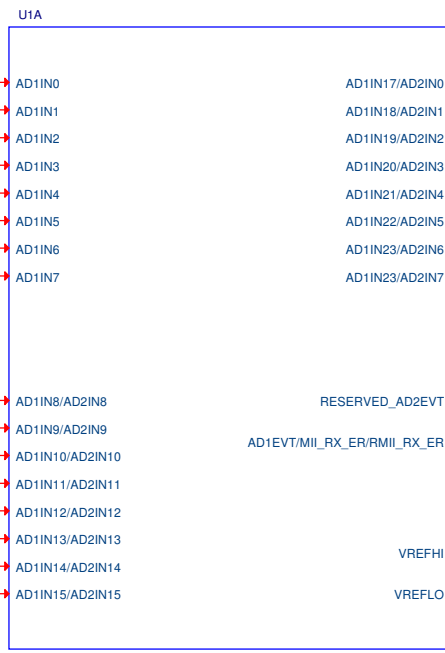
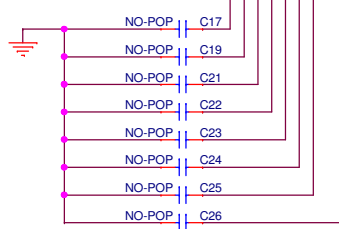
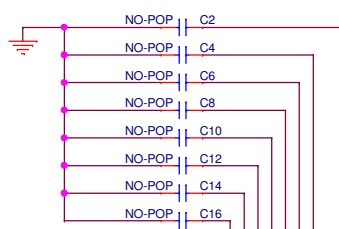
- 01 TITLE SHEET
- 02 MCU ADC
- 03 MCU EMIF
- 04 MCU SPI
- 05 MCU ETM
- 06 MCU DCAN, FLEXRAY, and LIN
- 07 MCU JTAG and OSC
- 08 MCU NHET
- 09 MCU GPIO
- 10 MCU Power & GND
- 11 FETSwitches for 1st USB
- 12 EMIF Addr/ETM/RTP
- 13 SDRAM
- 14 Sensors, LEDs, and Pushbutton
- 15 FET Switches for 2nd USB
- 16 USB 1st OHCI Host
- 17 USB device and 2nd OHCI Host
- 18 FET Switch for RMII and DIP Switch
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- 23 XD100V2 FTDI2232
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- 28 EXP P1 and EXP P2
- 29 EXP P3

**Proprietary  
&  
Confidential**

<b>Texas Instruments Inc</b>		
Title		
RM48 HDK		
Size A	Document Number TITLE	Rev B
Date:	Monday, August 13, 2012	Sheet 1 of 29

28 AD1IN0 >> R2 0  
 28 AD1IN1 >> R4 0  
 28 AD1IN2 >> R1 0  
 28 AD1IN3 >> R7 0  
 28 AD1IN4 >> R9 0  
 28 AD1IN5 >> R11 0  
 28 AD1IN6 >> R13 0  
 28 AD1IN7 >> R15 0

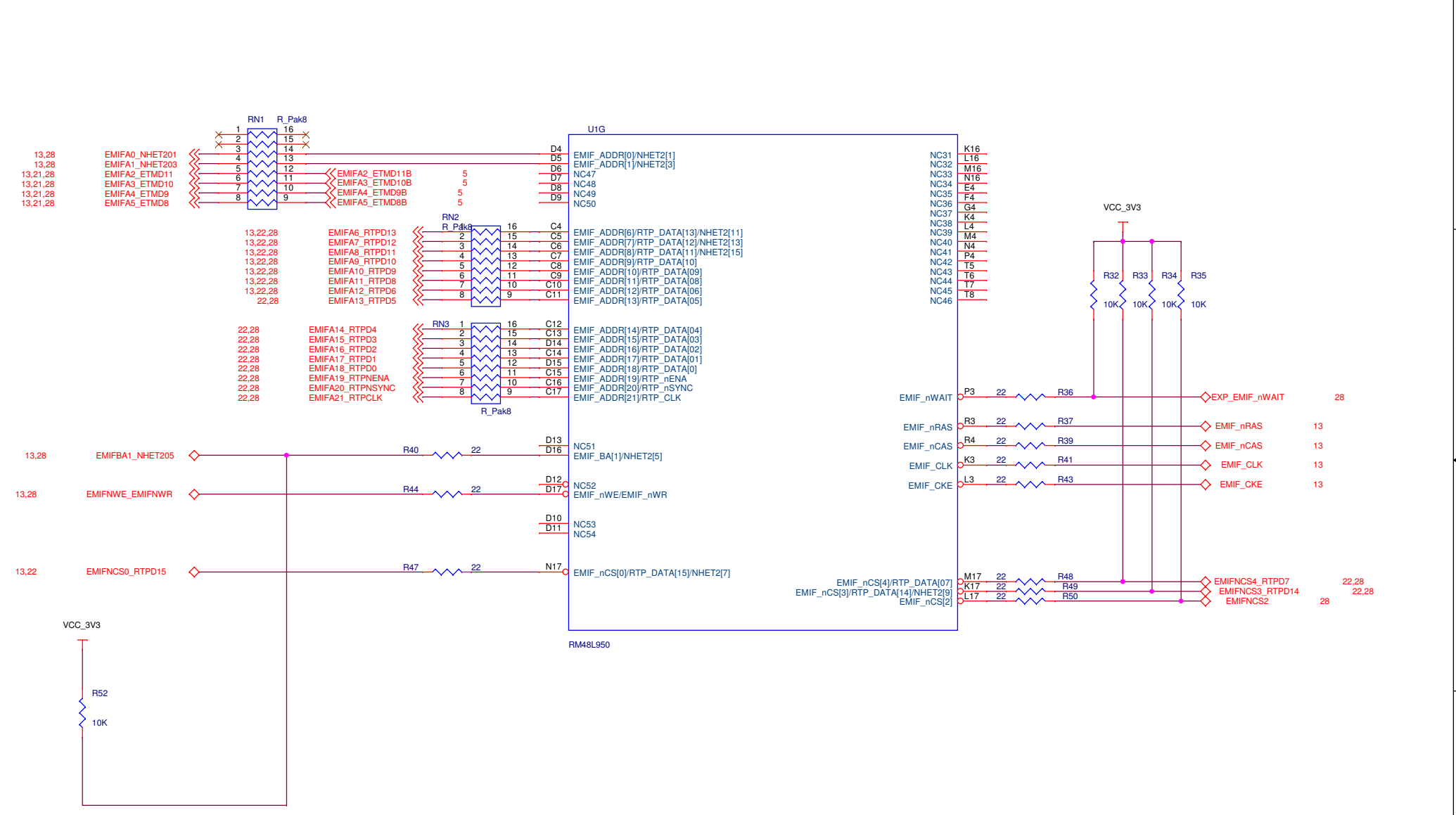
14.28 AD1IN8 >> R17 0  
 14.28 AD1IN9 >> R18 0  
 28 AD1IN10 >> R20 0  
 28 AD1IN11 >> R21 0  
 28 AD1IN12 >> R24 0  
 28 AD1IN13 >> R25 0  
 28 AD1IN14 >> R27 0  
 28 AD1IN15 >> R28 0



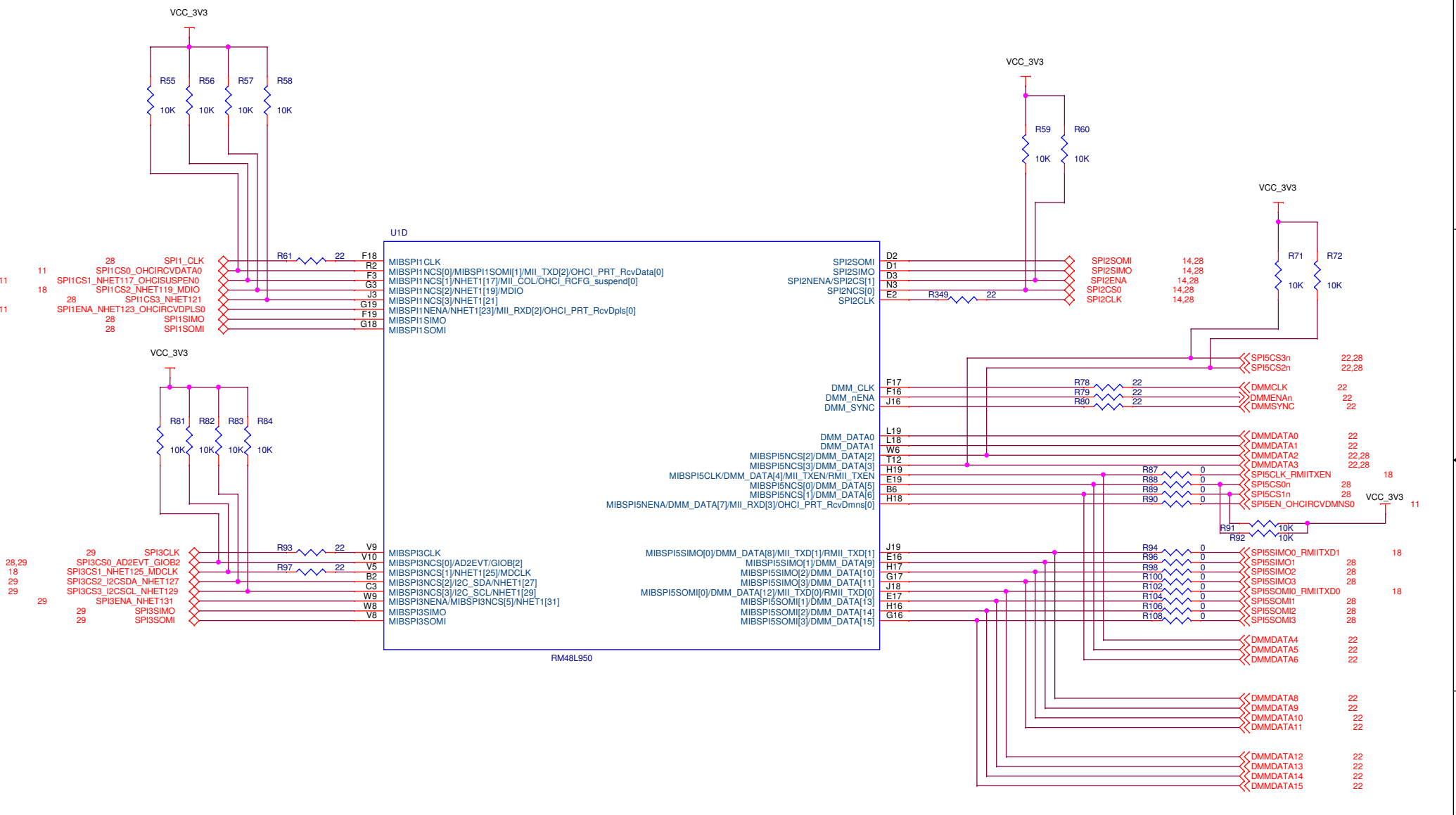
28 AD2IN0 << R3 0  
 28 AD2IN1 << R5 0  
 28 AD2IN2 << R6 0  
 28 AD2IN3 << R8 0  
 28 AD2IN4 << R10 0  
 28 AD2IN5 << R12 0  
 28 AD2IN6 << R14 0  
 28 AD2IN7 << R16 0

28 ADREFHI << R26 0  
 28 ADREFLO << R29 0

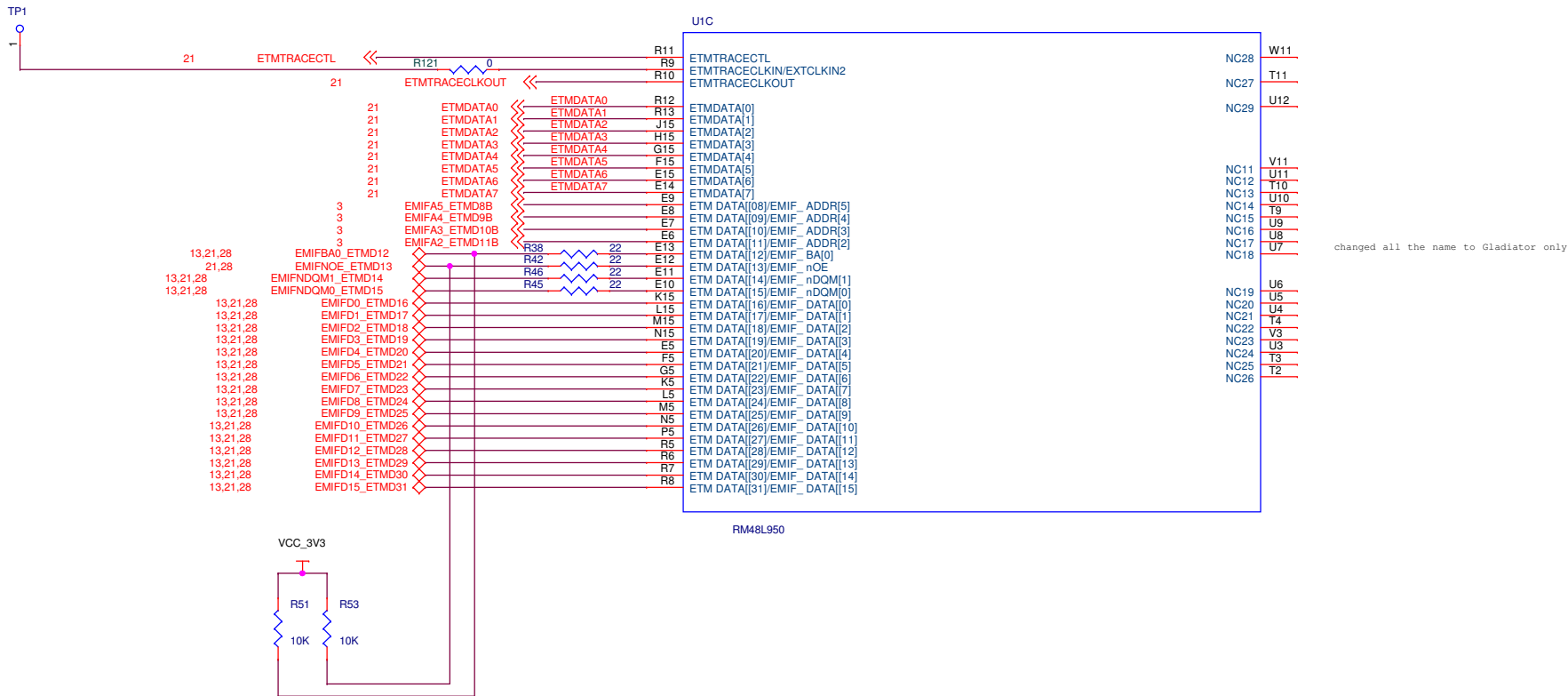
Title		
RM48 HDK		
Size B	Document MCU ADC	Number
Date:	Friday, January 11, 2013	Sheet 2 of 29
		Rev B



Title		
RM48 HDK		
Size	Document Number	Rev
B	MCU EMIF	B
Date:	Friday, January 11, 2013	Sheet 3 of 29

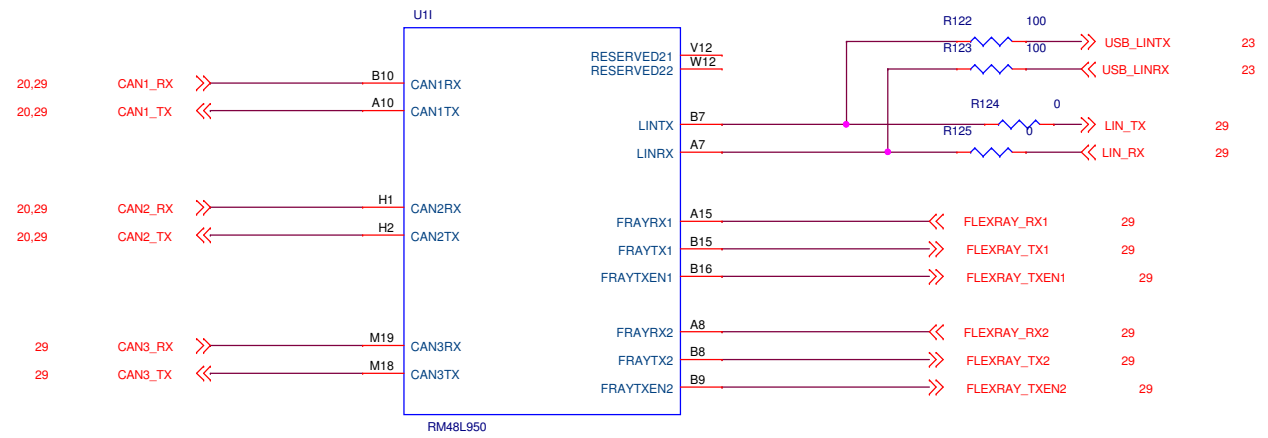


Title		
RM48 HDK		
Size B	Document Number	Rev B
	MCU MibSPis	
Date:	Friday, January 11, 2013	Sheet 4 of 29



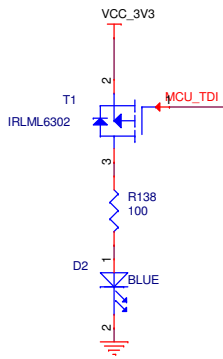
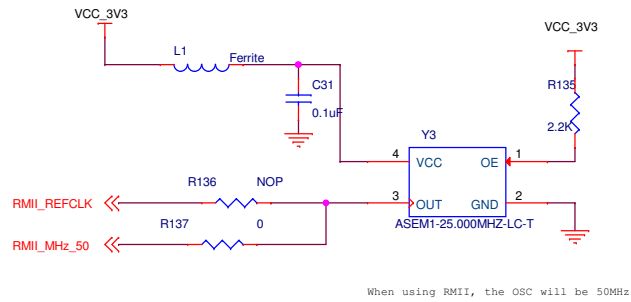
changed all the name to Gladiator only

Title		
RM48 HDK		
Size	Document Number	Rev
B	MCU ETM & Rsvd RTP	B
Date:	Friday, January 11, 2013	Sheet 5 of 29

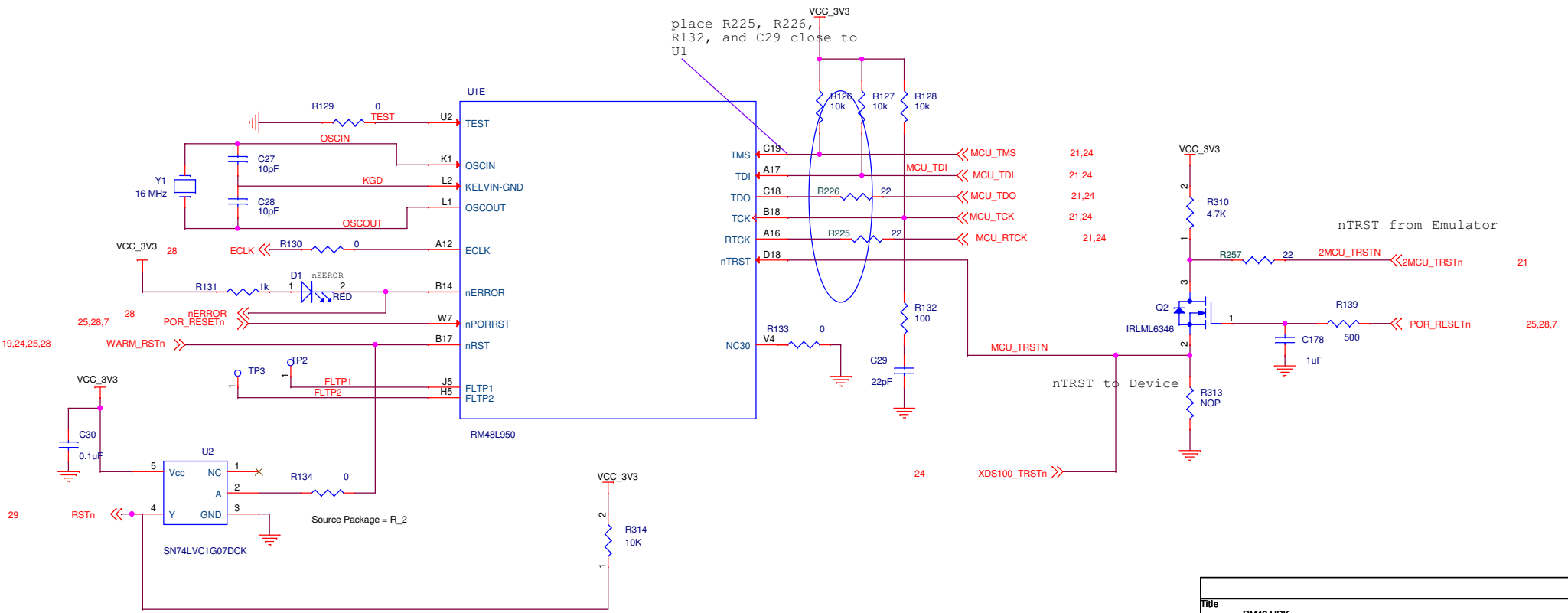


Title		
RM48 HDK		
Size	Document Number	Rev
B	MCU DCAN, FRAY, LIN	D
Date:	Friday, January 11, 2013	Sheet 6 of 29

To MCU  
18  
19  
TO PHY



place R225, R226,  
R132, and C29 close to  
U1

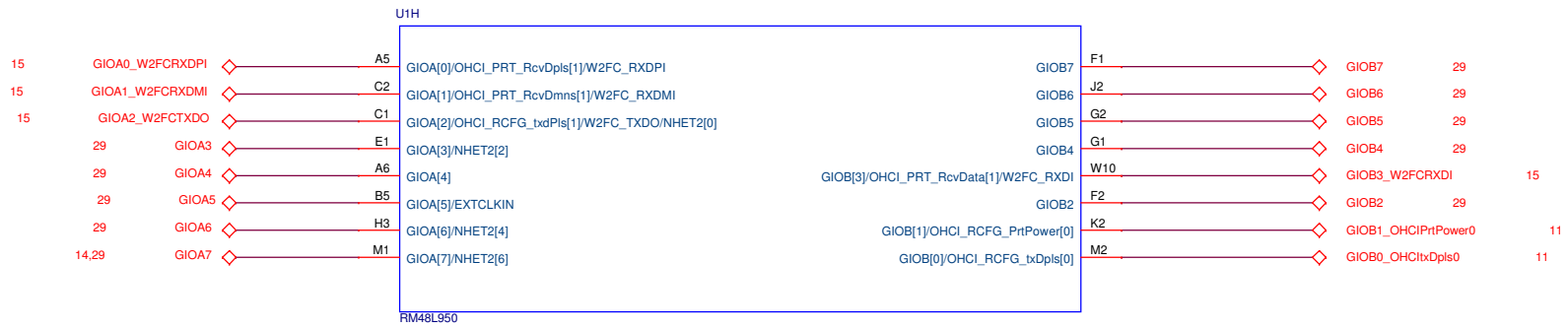


Title		
RM48 HDK		
Size B	Document Number	Rev D
	MCU JTAG & OSC	
Date:	Friday, January 11, 2013	Sheet 7 of 29

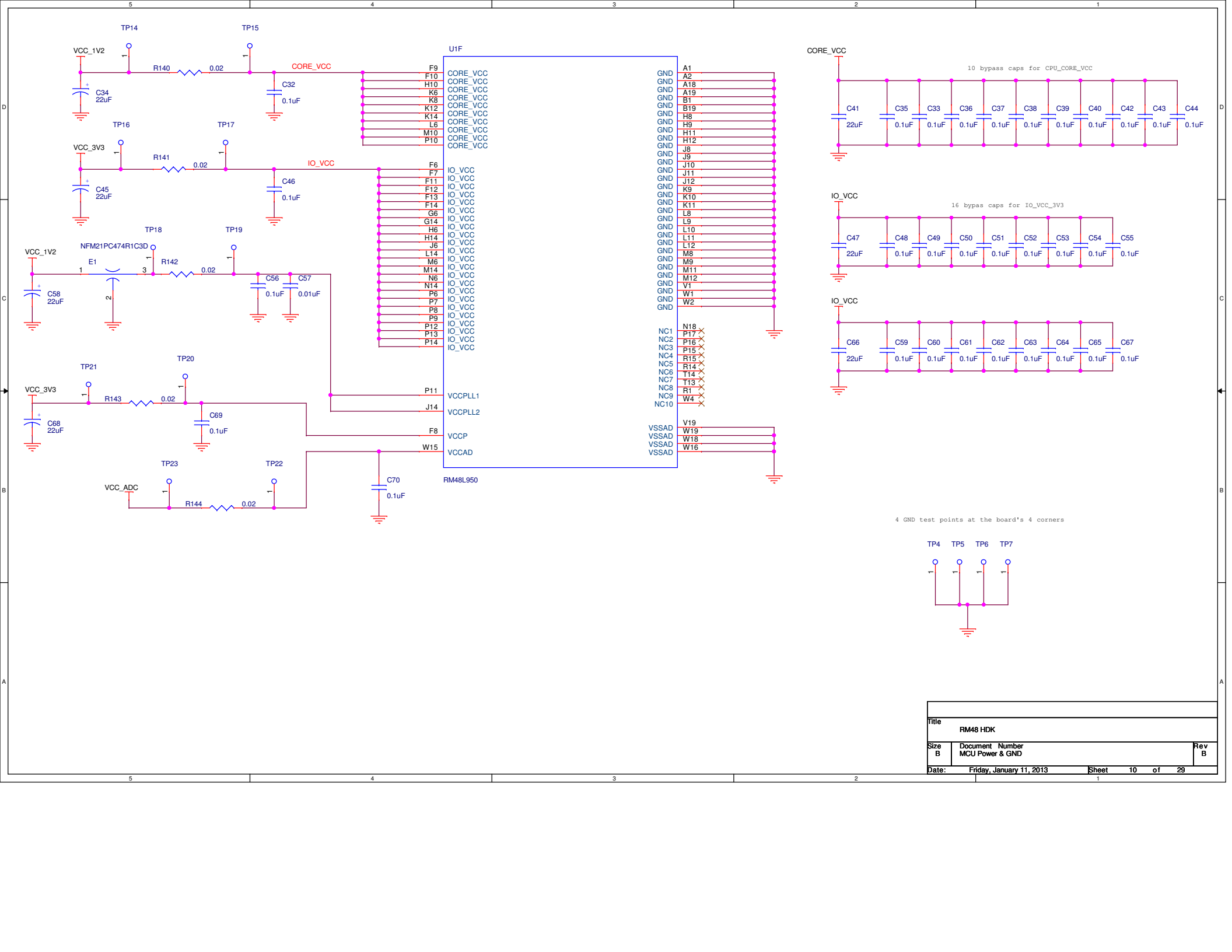


Title		
RM48 HDK		
Size B	Document Number	Rev B
	MCU NHET	
Date:	Friday, January 11, 2013	Sheet 8 of 29

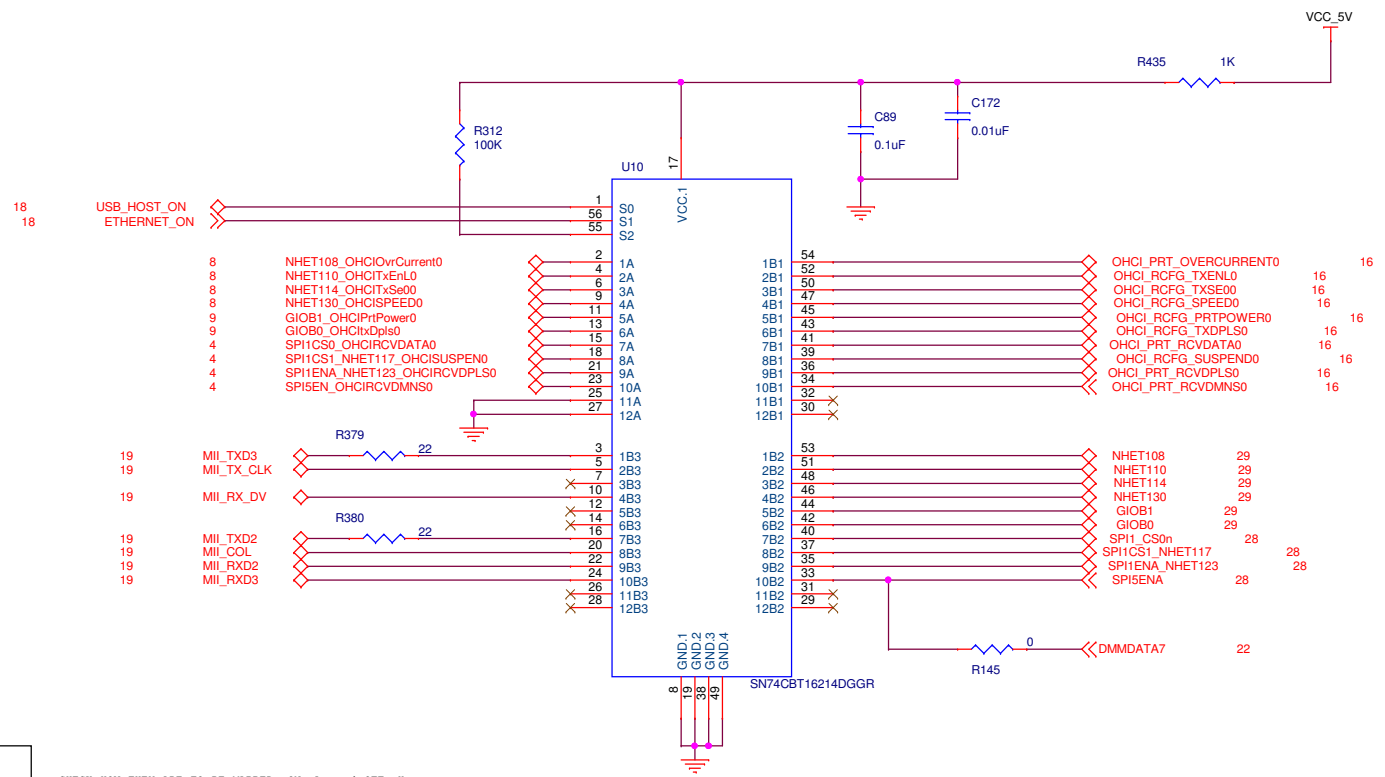




Title			
RM48 HDK			
Size B	Document	Number	Rev B
	MCU GPIO		
Date:	Friday, January 11, 2013	Sheet	9 of 29



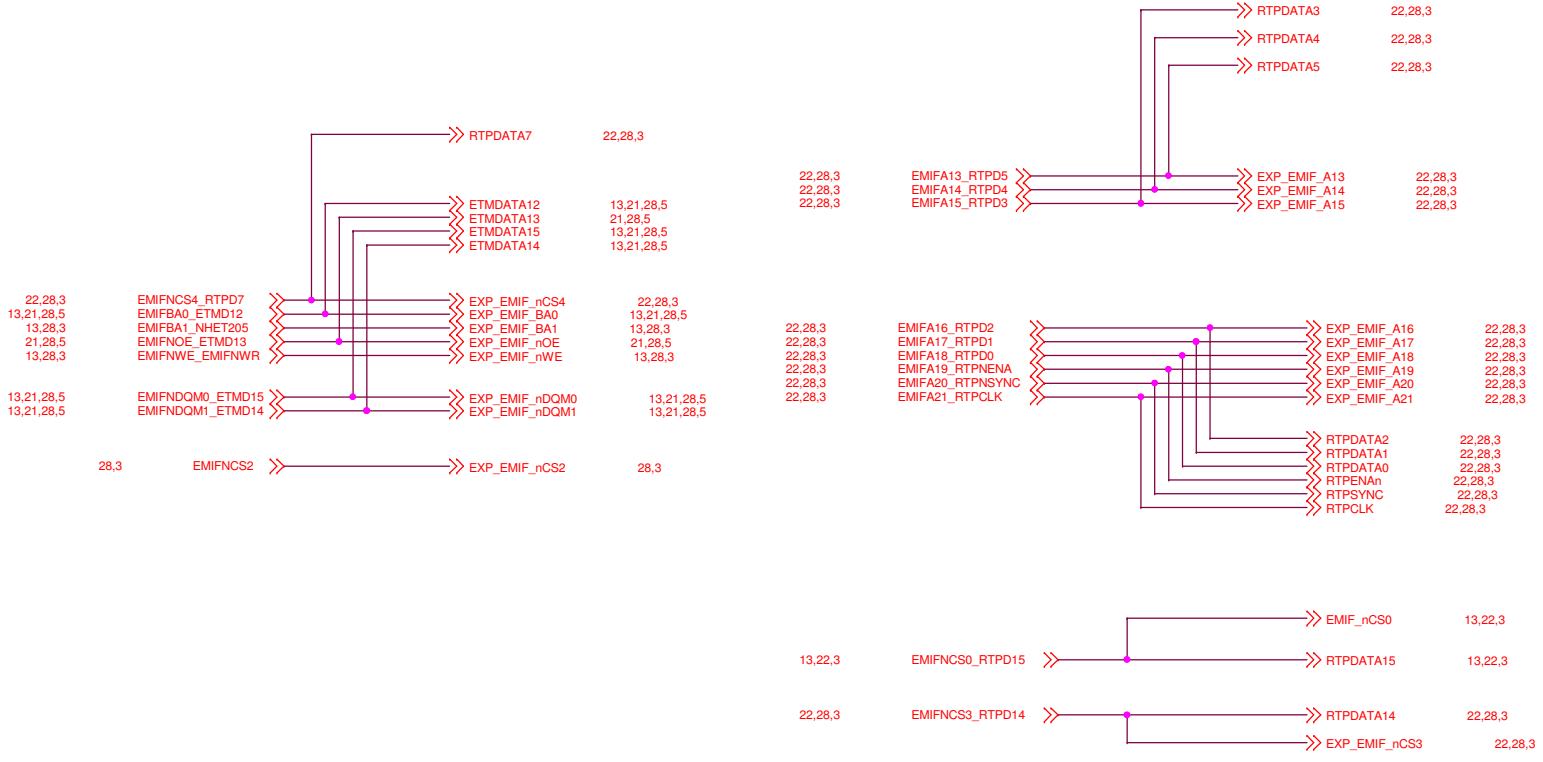
Title		
RM48 HDK		
Size	Document Number	Rev
B	MCU Power & GND	B
Date:	Friday, January 11, 2013	Sheet 10 of 29



S2	S1	S0	A
1	0	0	Z
1	0	1	B3**
1	1	0	B1 **
1	1	1	B2 **

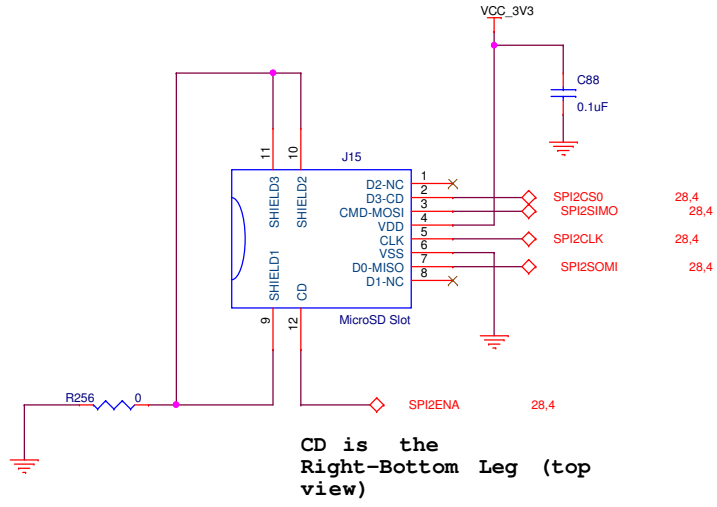
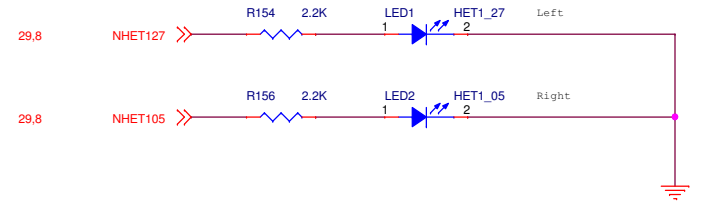
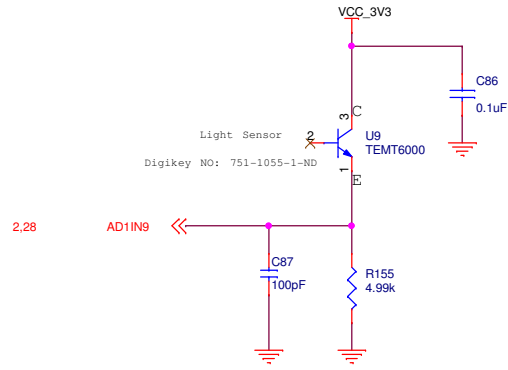
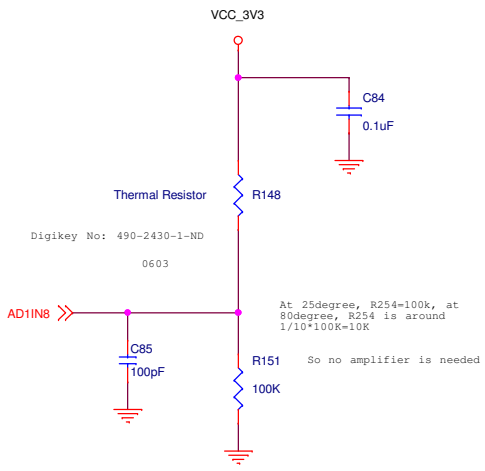
CHECK HOW THEY ARE TO BE MAPPED. ON--L, and OFF--H

Title		
TMS570LS3x/RM5x CPU CARD		
Size	Document Number	Rev
B	FET SWs FOR 1st USB HOST	B
Date:	Friday, January 11, 2013	Sheet 11 of 29

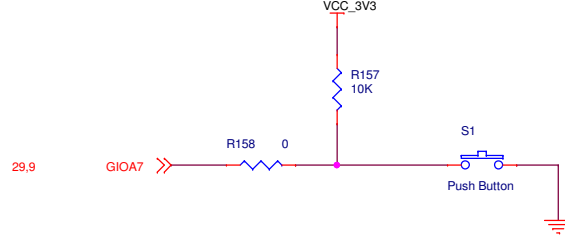


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Size	Document	Number	Rev		
B	EMIF DATA and ADDR BUSES		B		
Date:	Friday, January 11, 2013	Sheet	12	of	29

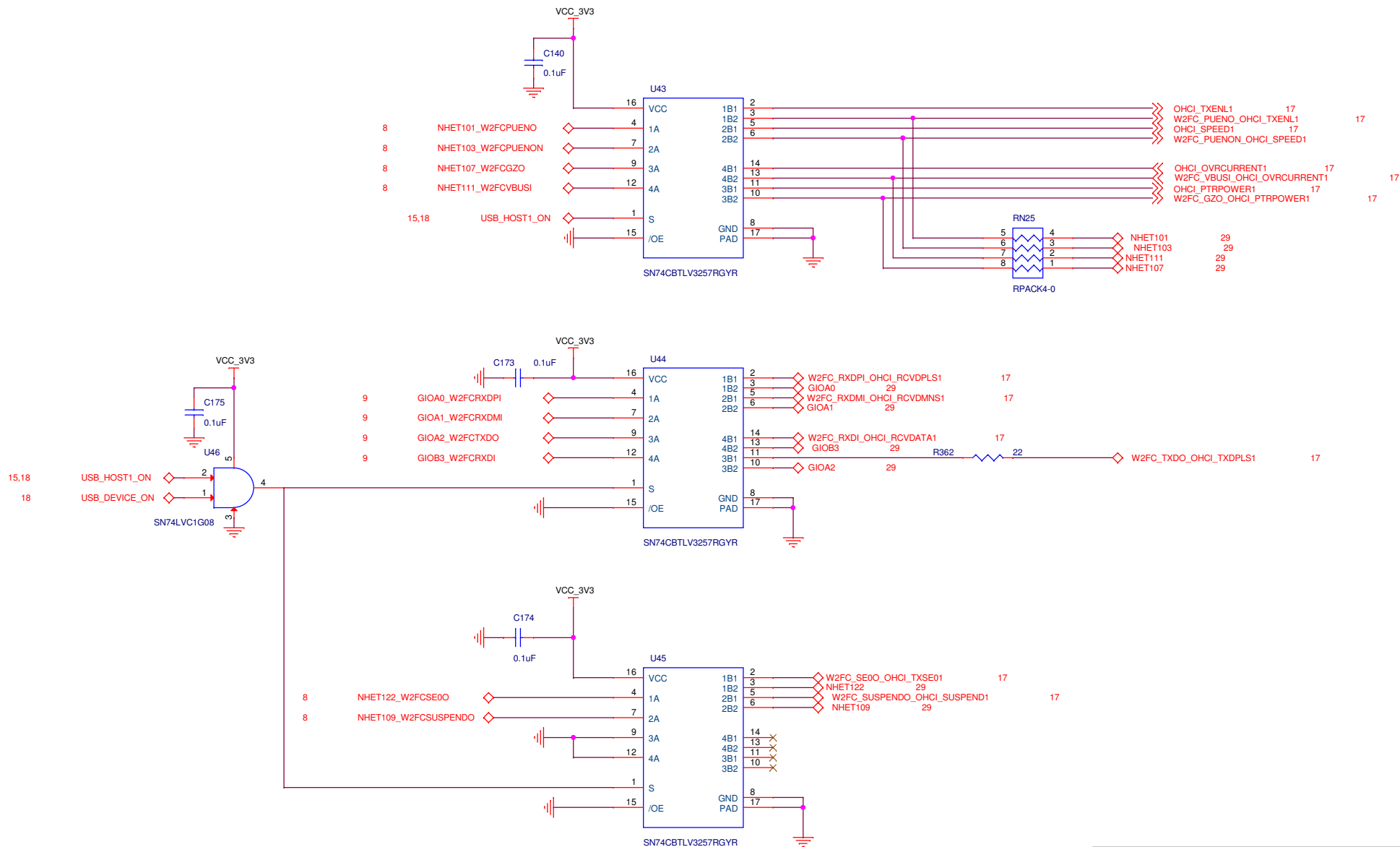




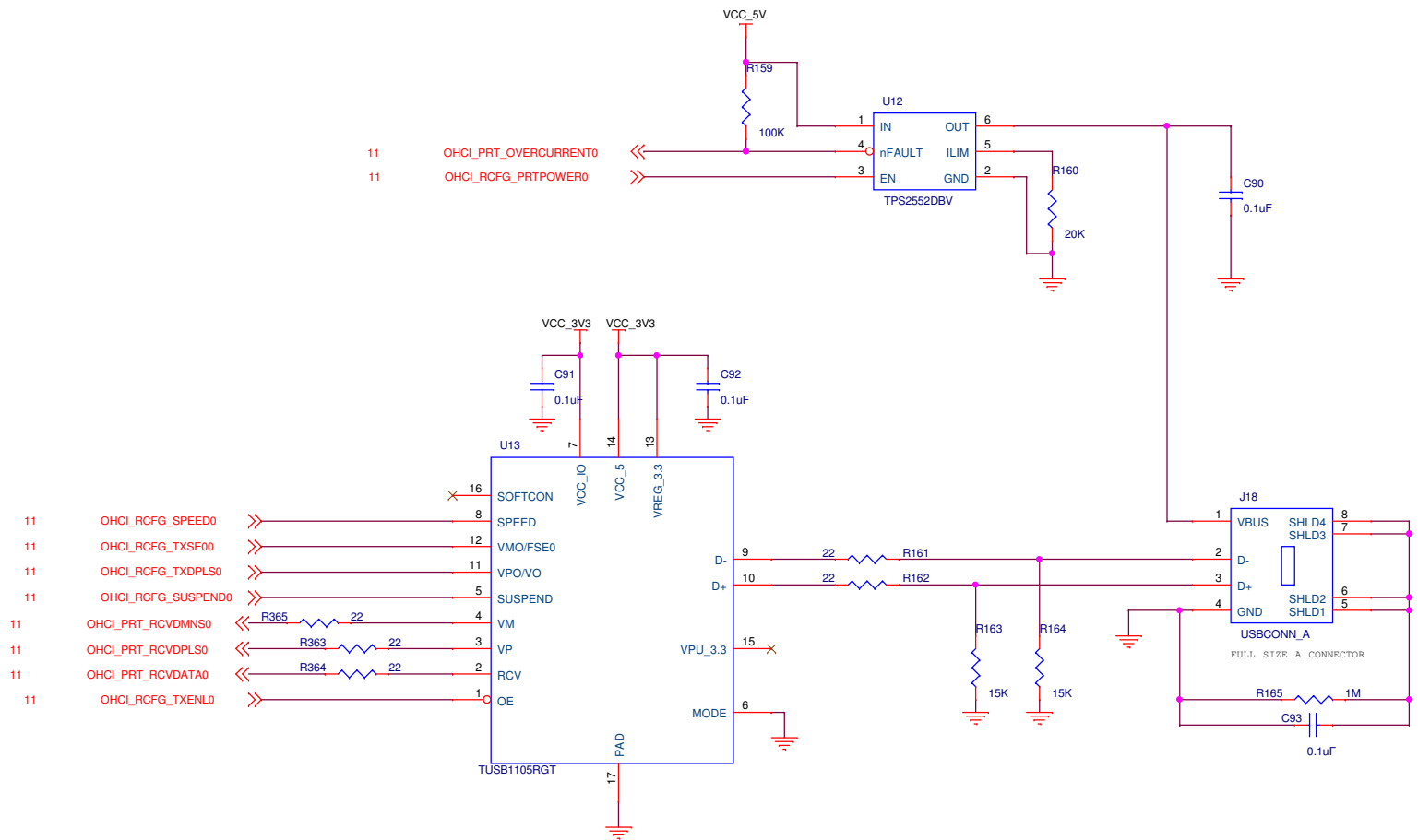
CD is the Right-Bottom Leg (top view)



Title		
RM48 HDK		
Size	Document Number	Rev
B	SENSOR, LED, PB	C
Date:	Friday, January 11, 2013	Sheet 14 of 29

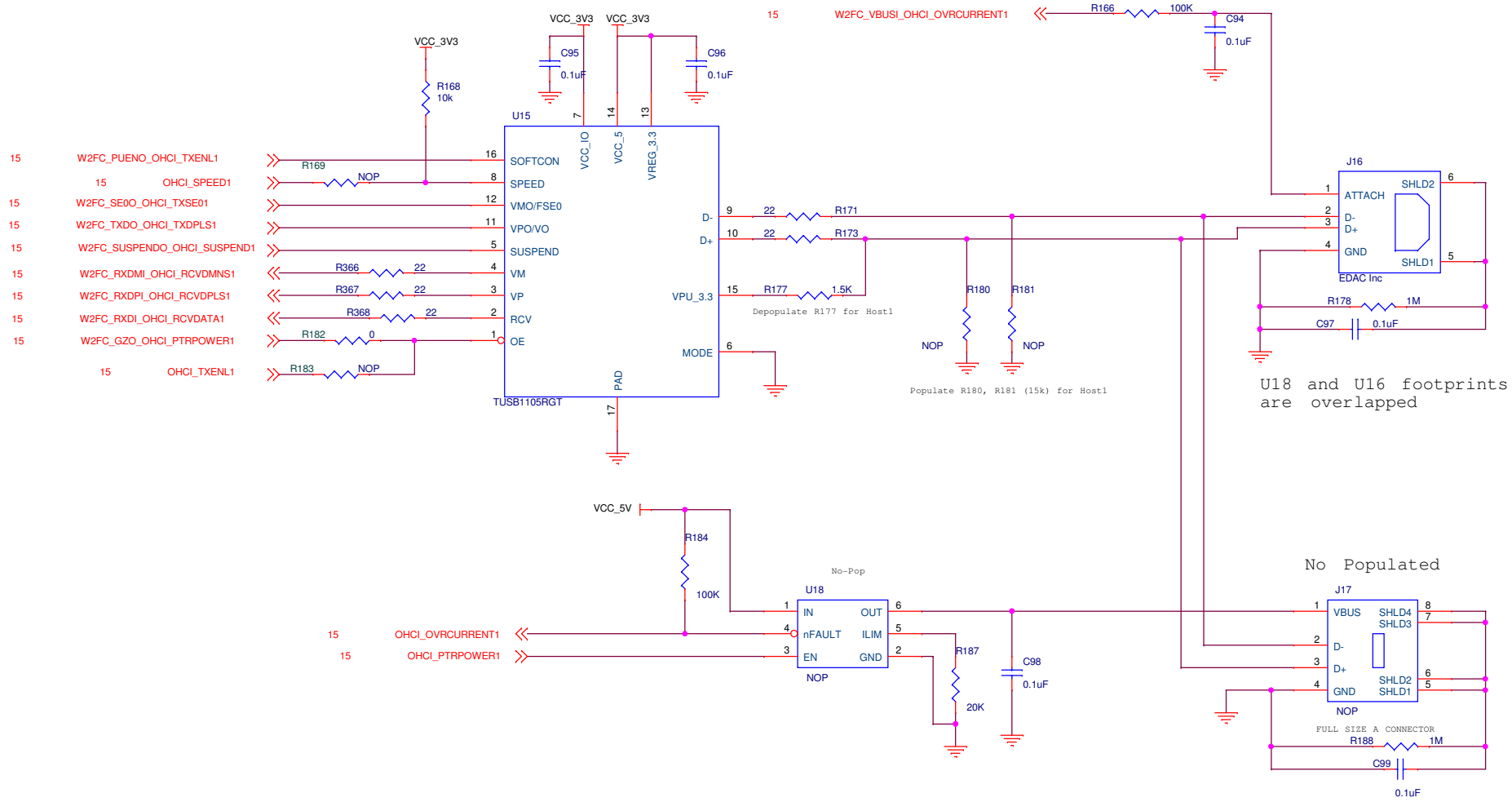


Title		
RM48 HDK		
Size B	Document Number	Rev B
FET SWs FOR USB DEVICE & 2nd HOST		
Date:	Friday, January 11, 2013	Sheet 15 of 29



Title		
RM48 HDK		
Size	Document Number	Rev
B	USB 1st OHCI Host	B
Date:	Friday, January 11, 2013	Sheet 16 of 29

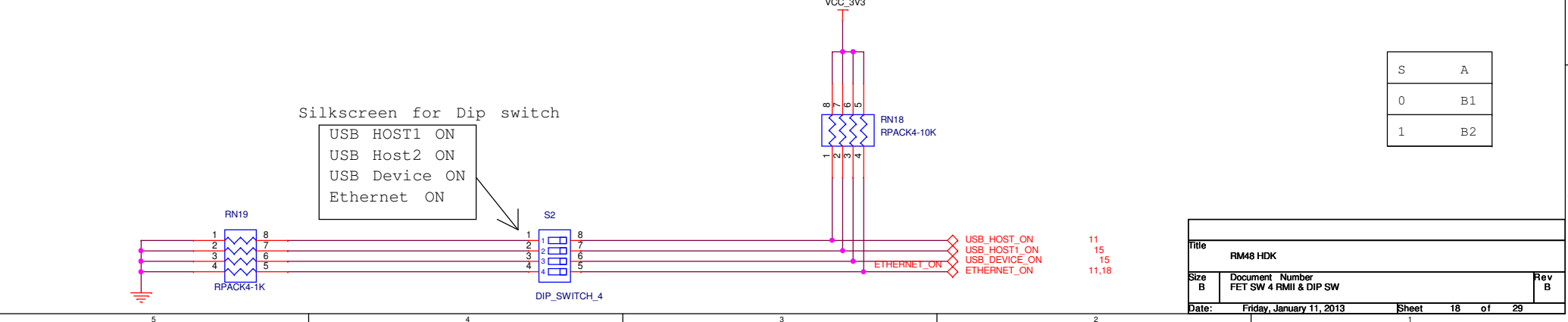
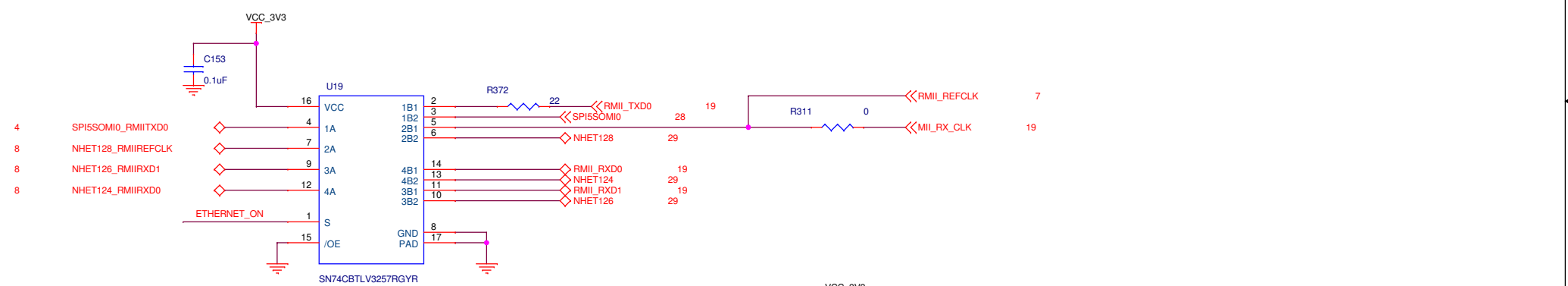
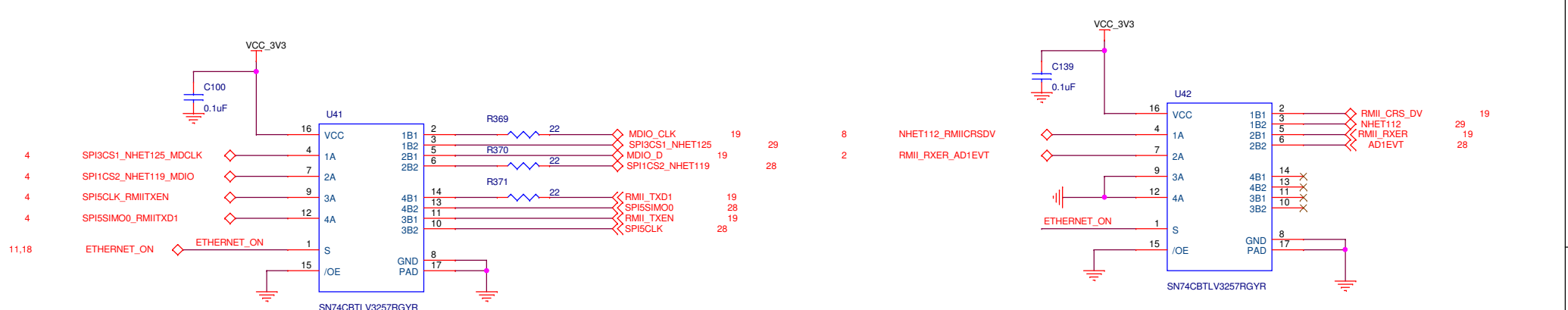




U18 and U16 footprints are overlapped

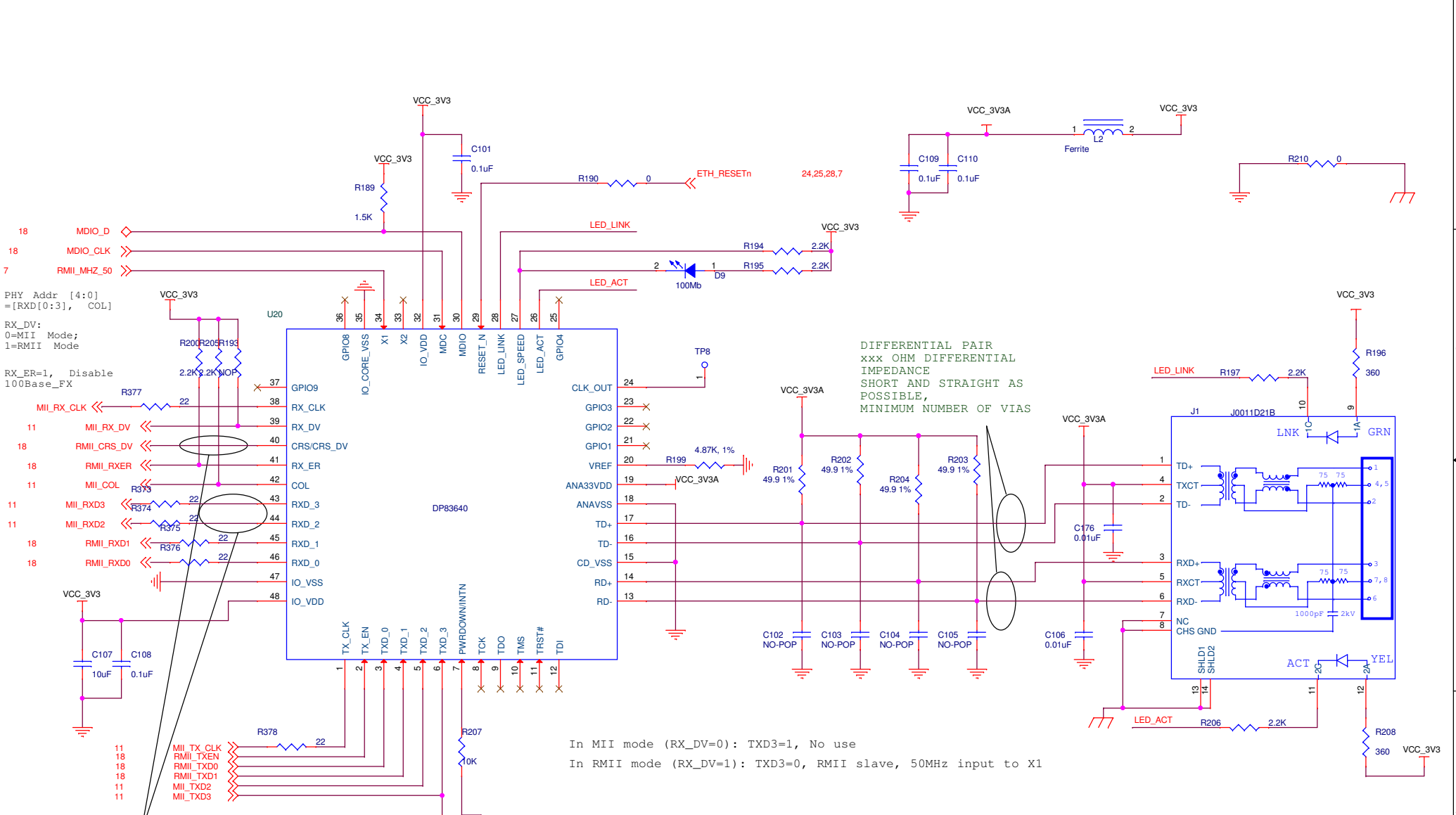
No Populated

Title		
RM48 HDK		
Size B	Document Number	Rev B
	USB Device & 2nd HOST	
Date:	Friday, January 11, 2013	Sheet 17 of 29



S	A
0	B1
1	B2

Title		RM48 HDK	
Size	Document Number	Rev B	
B	FET SW 4 RMII & DIP SW		
Date:	Friday, January 11, 2013	Sheet	18 of 29

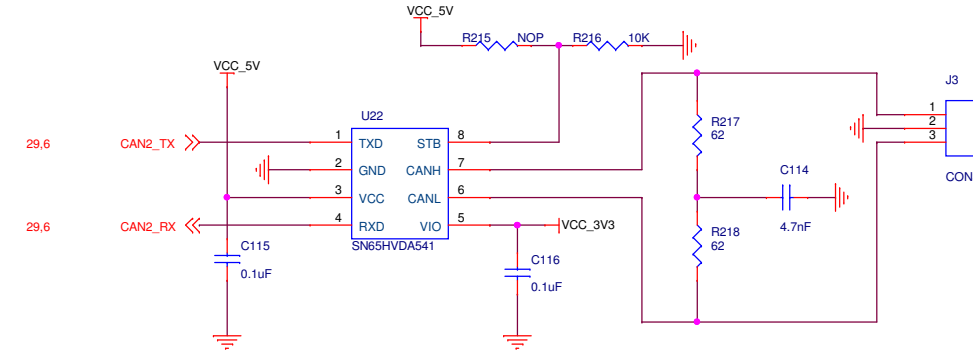
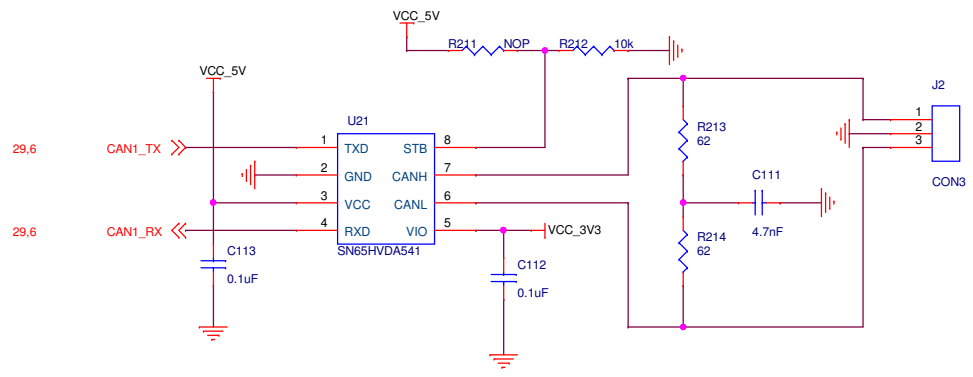


DIFFERENTIAL PAIR  
 xxx OHM DIFFERENTIAL  
 IMPEDANCE  
 SHORT AND STRAIGHT AS  
 POSSIBLE,  
 MINIMUM NUMBER OF VIAS

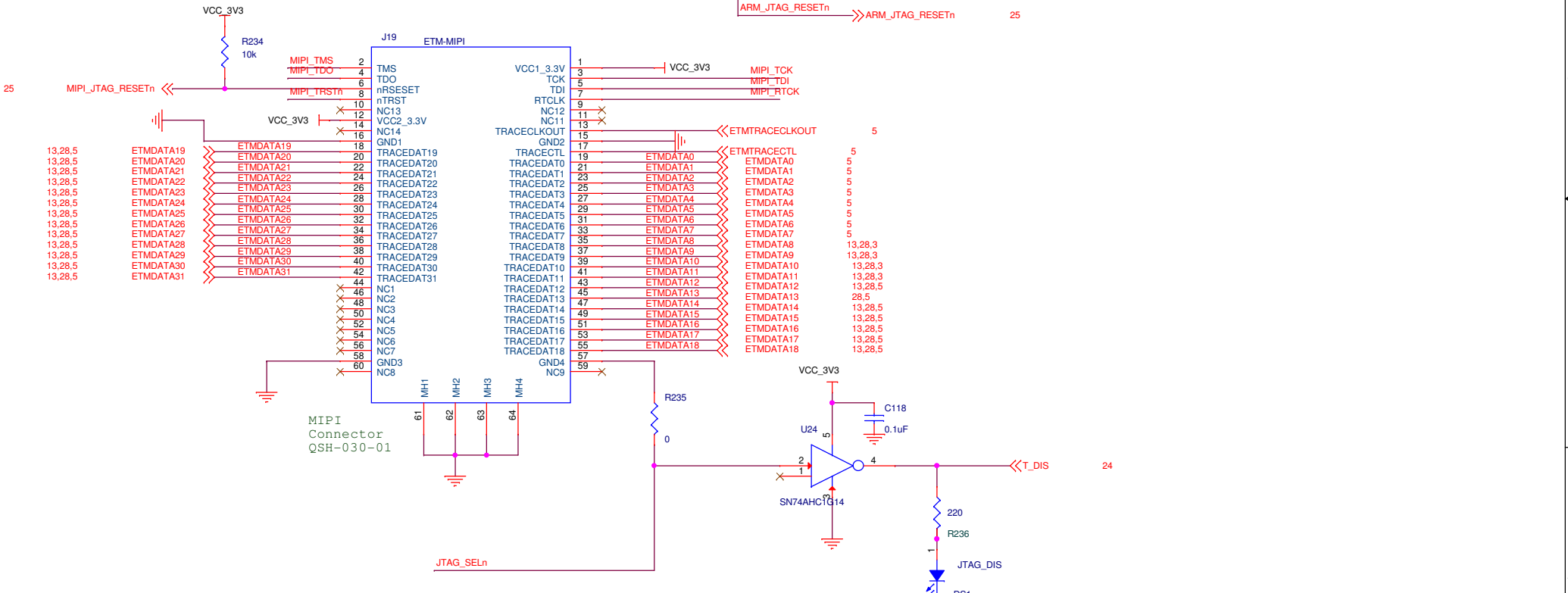
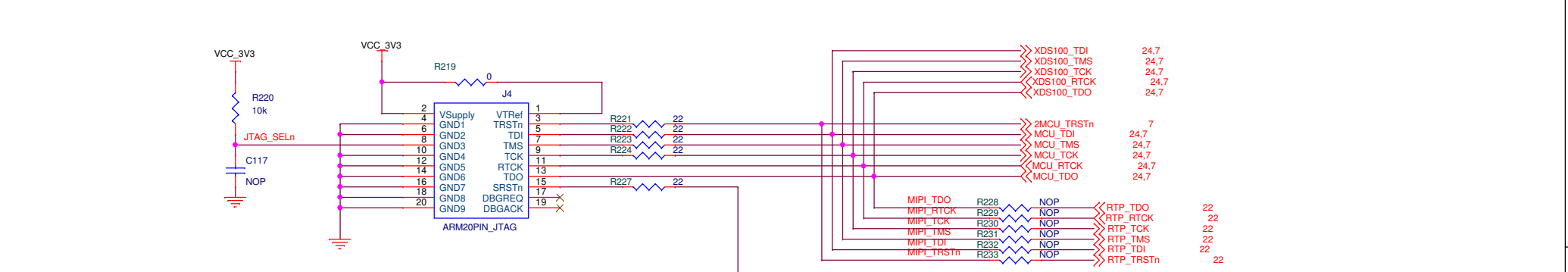
In MII mode (RX\_DV=0): TXD3=1, No use  
 In RMII mode (RX\_DV=1): TXD3=0, RMII slave, 50MHz input to X1

- Strongly Recommend:**
1. Add a 2.2K ohms pull-down resistors to RXD\_2 and RXD\_3 signals.
  2. Add a 2.2K ohms pull-up resistor to CRS/CRS\_DV signal

Title		
RM48 HDK		
Size B	Document Number Ethernet PHY & Conn	Rev B
Date: Tuesday, March 05, 2013	Sheet 19	of 29

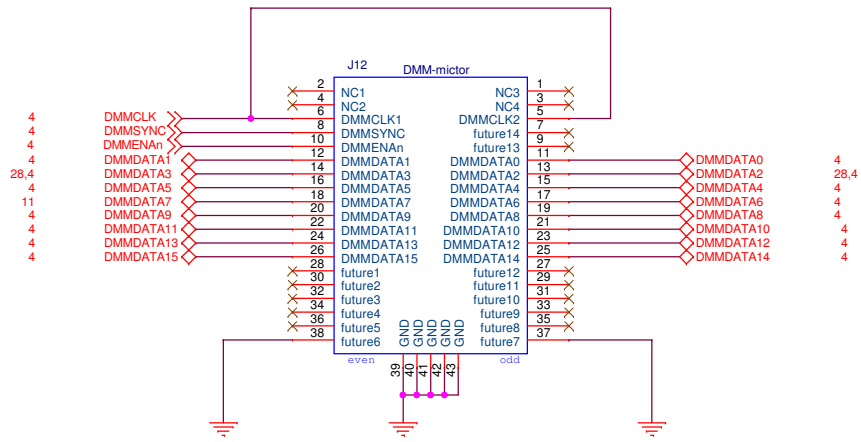


Title		
RM48 HDK		
Size B	Document Number	Rev B
	DCAN Transceivers	
Date:	Friday, January 11, 2013	Sheet 20 of 29

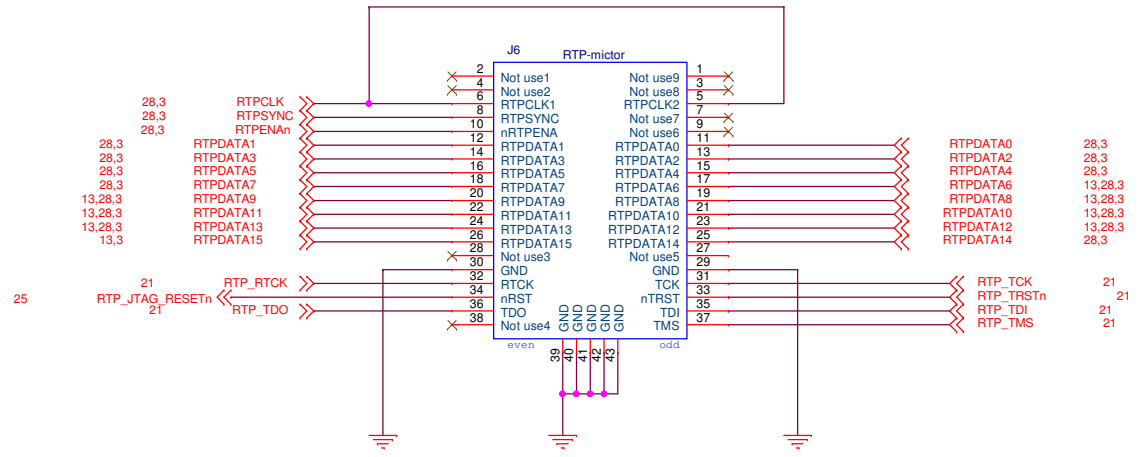


JTAG\_SELn = HIGH --> XDS100  
 JTAG\_SELn = LOW --> ARM  
 JTAG and MIPI

Title		
RM48 HDK		
Size B	Document Number	Rev B
JTAG & MIPI Connectors		
Date:	Friday, January 11, 2013	Sheet 21 of 29

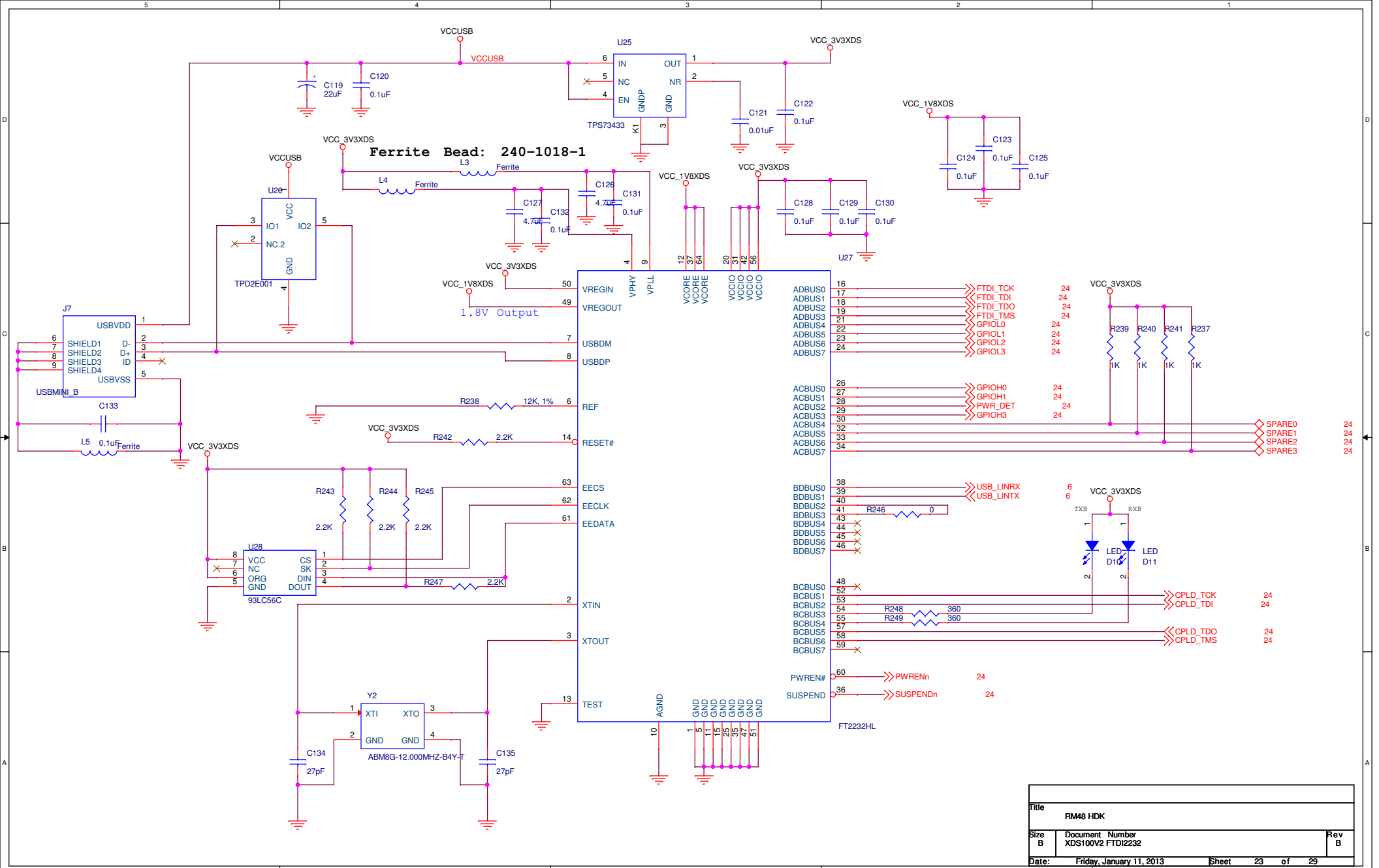


Foot Print Only  
Pin39/40/41/42/43 are the central GND

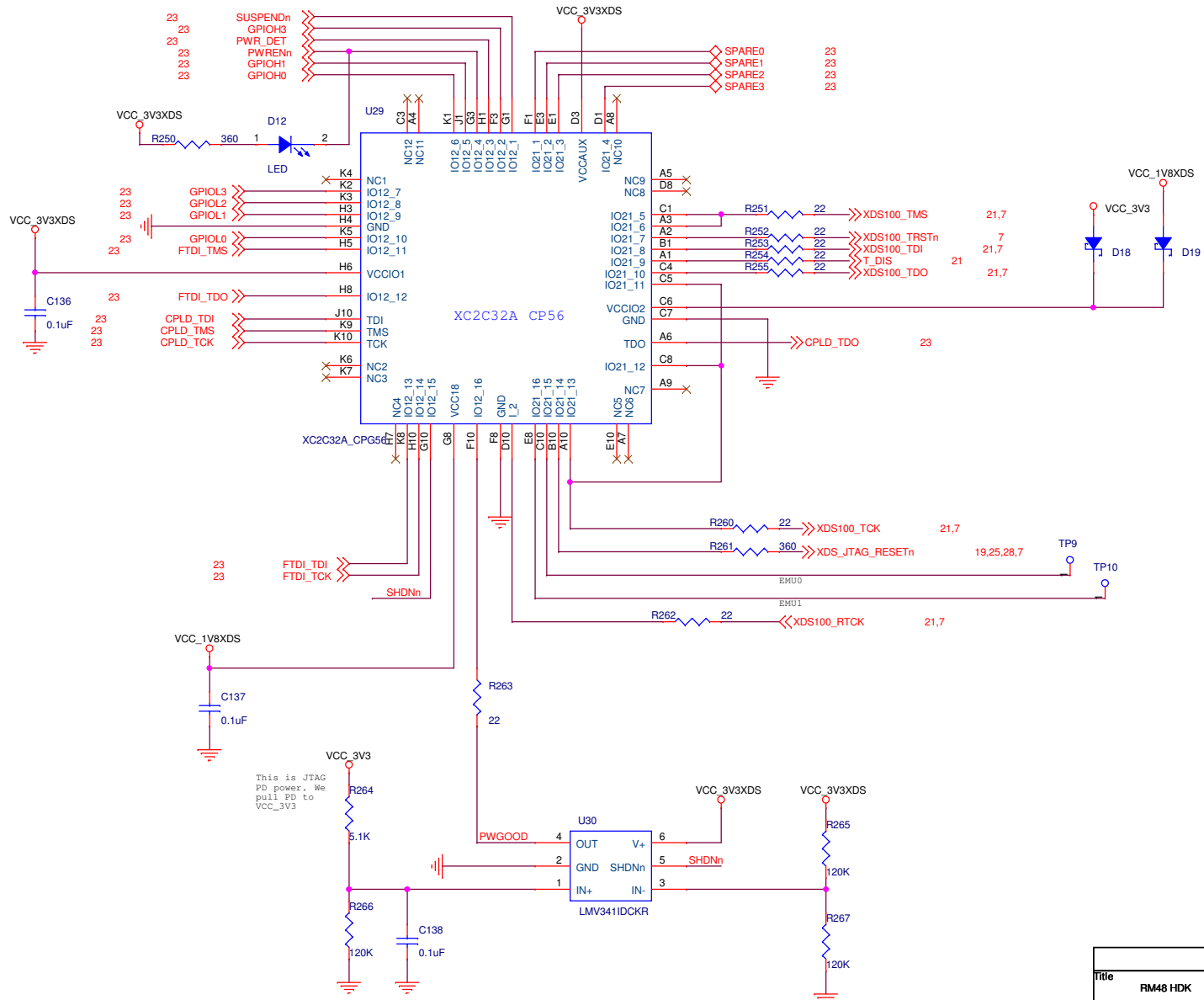


AMP 2-5767004-2  
Receptacle, Center Strip Contacts  
Foot Print Only

Title			
RM48 HDK			
Size	Document Number	Rev	
B	DMM and RTP Connectors	B	
Date:	Friday, January 11, 2013	Sheet	22 of 29



Title			
RM48 HDK			
Size	Document	Number	Rev
B	XDS100V2	FTDI2232	B
Date:	Friday, January 11, 2013	Sheet	23 of 29



This is JTAG PD power. We pull PD to VCC\_3V3

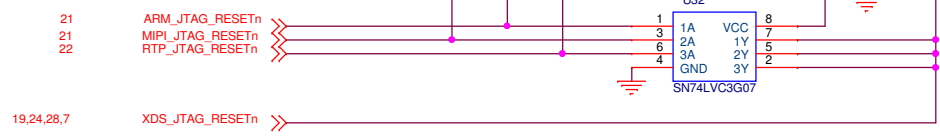
Title		
RM48 HDK		
Size	Document Number	Rev
B	XDS100V2 CPLD	B
Date:	Friday, January 11, 2013	Sheet 24 of 29



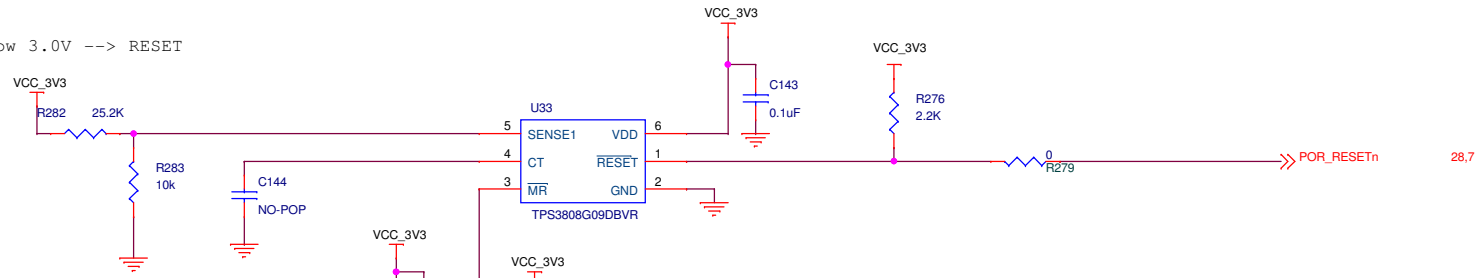


If VCC\_3.3V below 3.0V --> RESET

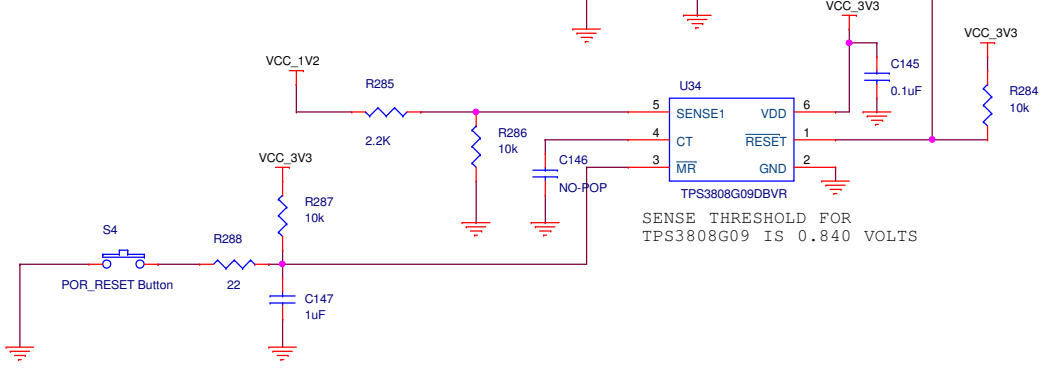
This is the RESET pin rather than TRST



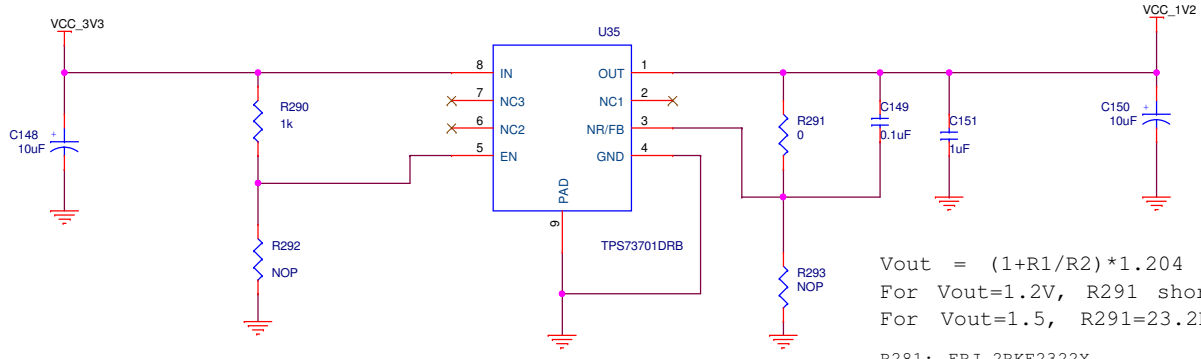
If VCC\_3.3V below 3.0V --> RESET



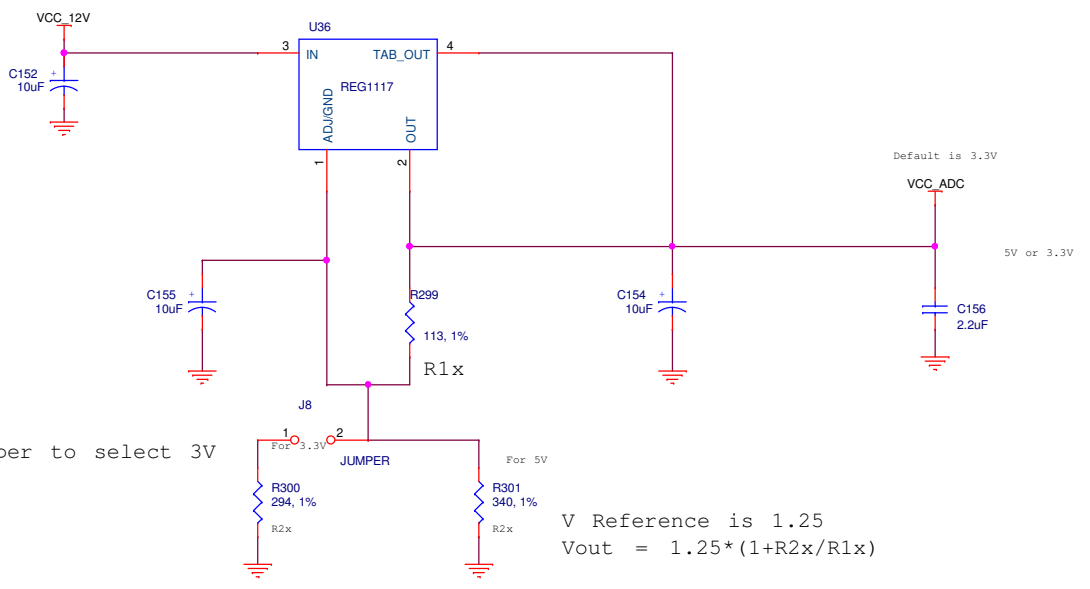
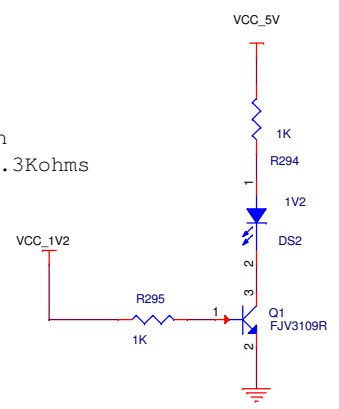
If VCC\_1.5V below 1.35V --> RESET



Title		
RM48 HDK		
Size	Document Number	Rev
B	RESET	B
Date:	Friday, January 11, 2013	Sheet 25 of 29

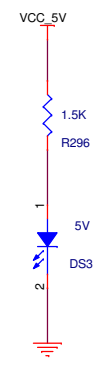
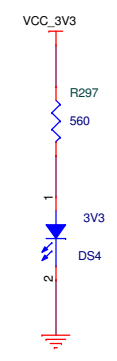


$V_{out} = (1+R1/R2) * 1.204$   
 For  $V_{out}=1.2V$ , R291 shorted, and R293 Open  
 For  $V_{out}=1.5$ , R291=23.2Kohms, and R293=95.3Kohms  
 R281: ERJ-2RKF2322X



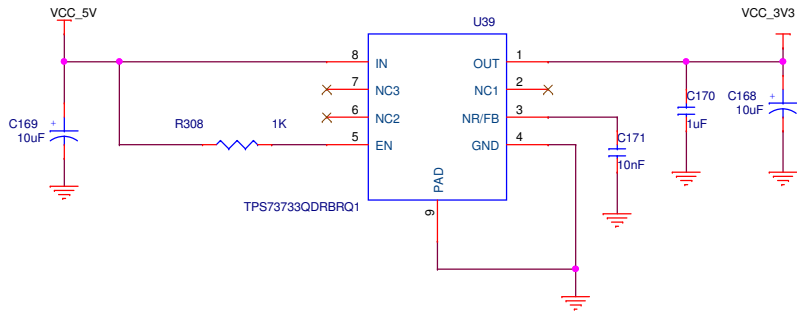
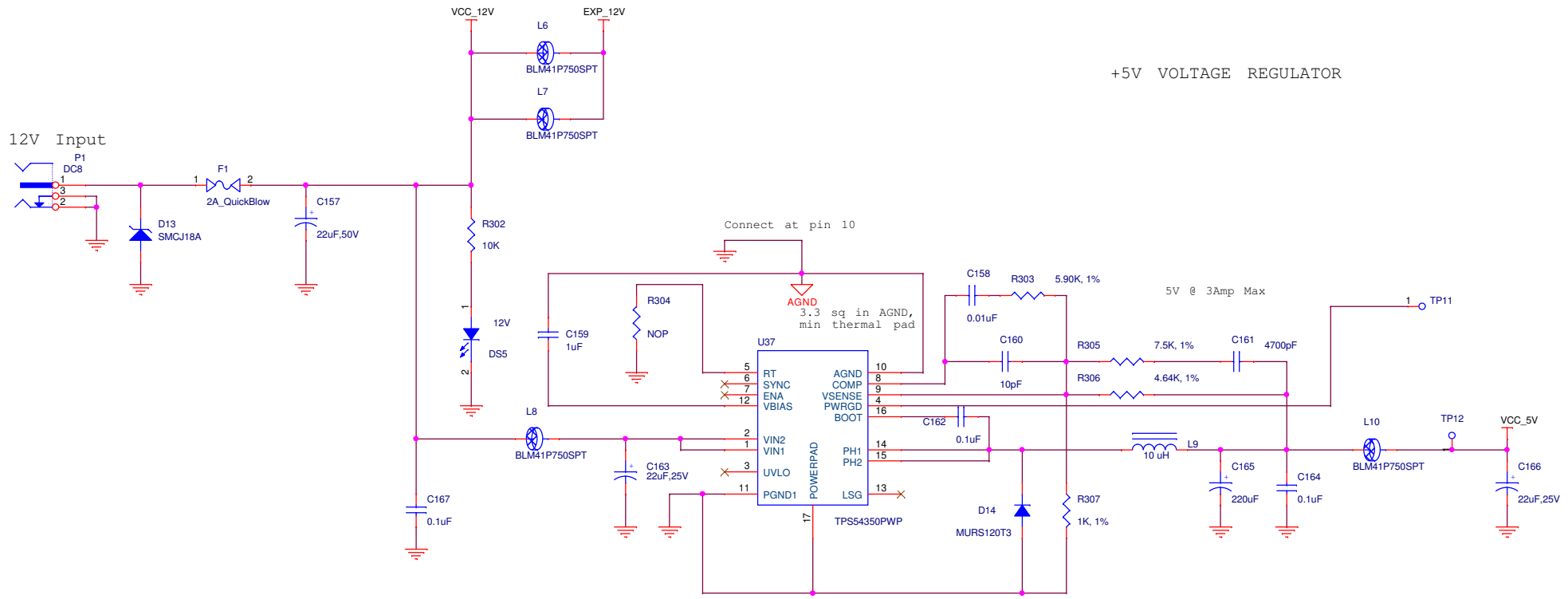
use jumper to select 3V

V Reference is 1.25  
 $V_{out} = 1.25 * (1+R2x/R1x)$

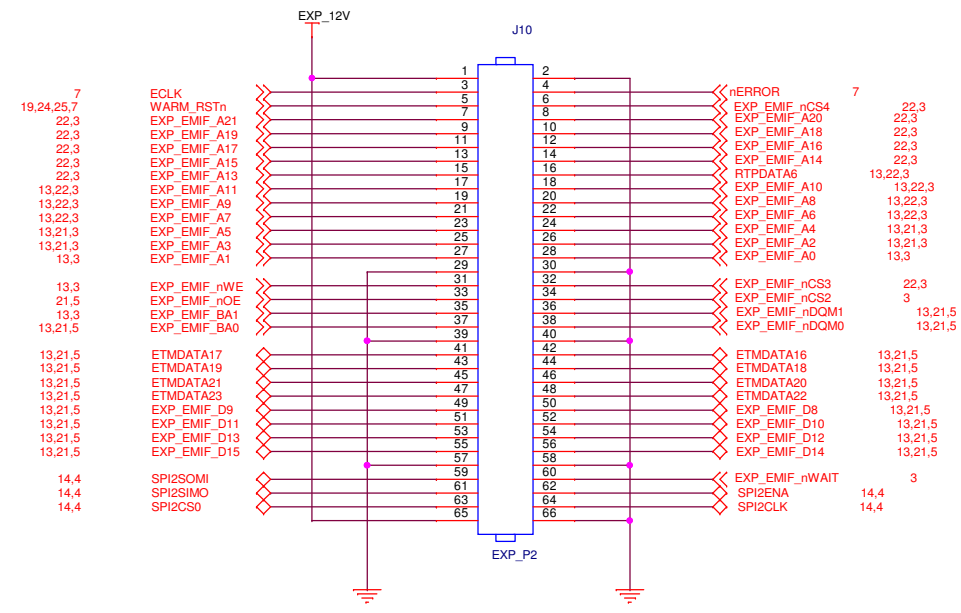
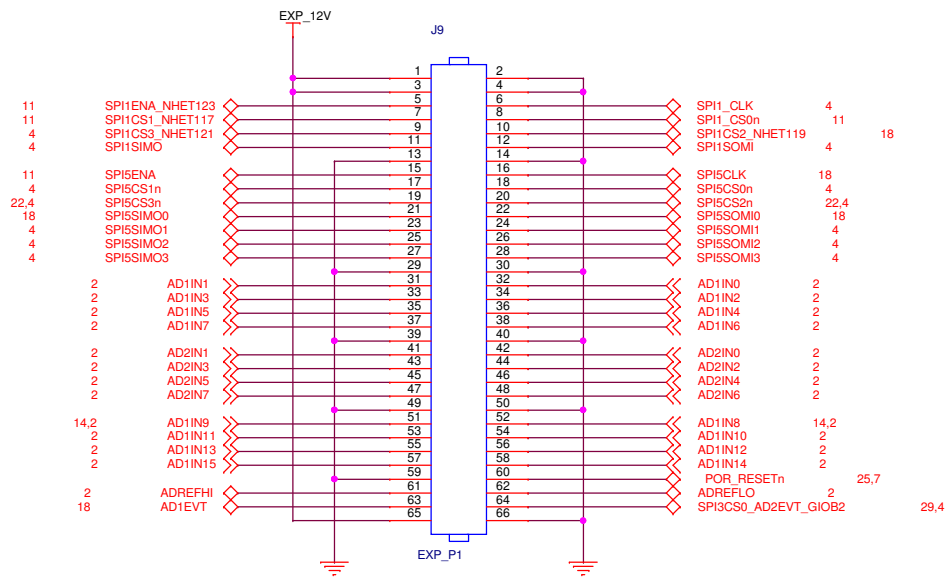


Title		
RM48 HDK		
Size B	Document Number	Rev C
Power Supply		
Date:	Friday, January 11, 2013	Sheet 26 of 29

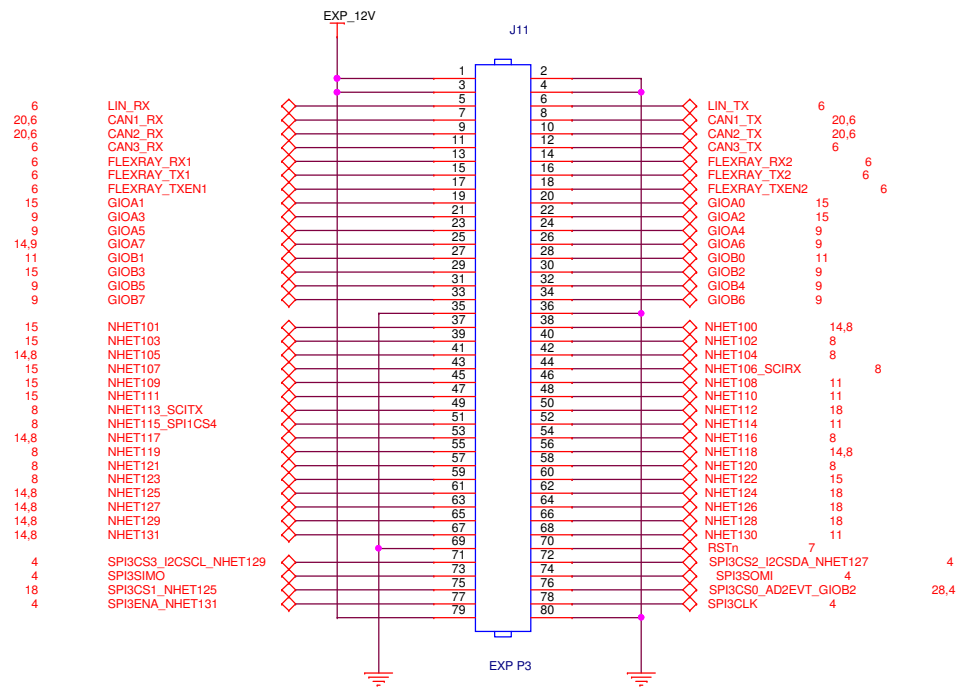
# +5V VOLTAGE REGULATOR



Title		
RM48 HDK		
Size B	Document Number	Rev B
Power Input		
Date:	Friday, January 11, 2013	Sheet 27 of 29



Title		
RM48 HDK		
Size	Document Number	Rev
B	Expansion Connector 1	B
Date:	Friday, January 11, 2013	Sheet 28 of 29



Signal	Pin	Signal	Pin	Signal	Pin
6	LIN_RX	3	1	LIN_TX	6
20.6	CAN1_RX	5	2	CAN1_TX	20.6
20.6	CAN2_RX	7	3	CAN2_TX	20.6
6	CAN3_RX	9	4	CAN3_TX	6
6	FLEXRAY_RX1	11	5	FLEXRAY_RX2	6
6	FLEXRAY_TX1	13	6	FLEXRAY_TX2	6
6	FLEXRAY_TXEN1	15	7	FLEXRAY_TXEN2	6
15	GIOA1	17	8	GIOA0	15
9	GIOA3	19	9	GIOA2	15
9	GIOA5	21	10	GIOA4	9
14.8	GIOA7	23	11	GIOA5	9
11	GIOB1	25	12	GIOB0	11
15	GIOB3	27	13	GIOB2	9
9	GIOB5	29	14	GIOB4	9
9	GIOB7	31	15	GIOB6	9
15	NHET101	33	16	NHET100	14.8
15	NHET103	35	17	NHET102	8
14.8	NHET105	37	18	NHET104	8
15	NHET107	39	19	NHET106_SCIRX	8
15	NHET109	41	20	NHET108	11
15	NHET111	43	21	NHET110	11
8	NHET113_SCITX	45	22	NHET112	18
8	NHET115_SPI1CS4	47	23	NHET114	11
14.8	NHET117	49	24	NHET116	8
8	NHET119	51	25	NHET118	14.8
8	NHET121	53	26	NHET120	8
8	NHET123	55	27	NHET122	15
14.8	NHET125	57	28	NHET124	18
14.8	NHET127	59	29	NHET126	18
14.8	NHET129	61	30	NHET128	18
14.8	NHET131	63	31	NHET130	11
4	SPI3CS3_I2CSCL_NHET129	65	32	RSTn	7
4	SPI3SIMO	67	33	SPI3CS2_I2CSDA_NHET127	4
18	SPI3CS1_NHET125	69	34	SPI3SOMI	4
4	SPI3ENA_NHET131	71	35	SPI3CS0_AD2EVT_GIOB2	28.4
		73	36	SPI3CLK	4
		75	37		
		77	38		
		79	39		

Title		
RM48 HDK		
Size	Document Number	Rev
B	Expansion Connector 2	B
Date:	Friday, January 11, 2013	Sheet 1 of 29