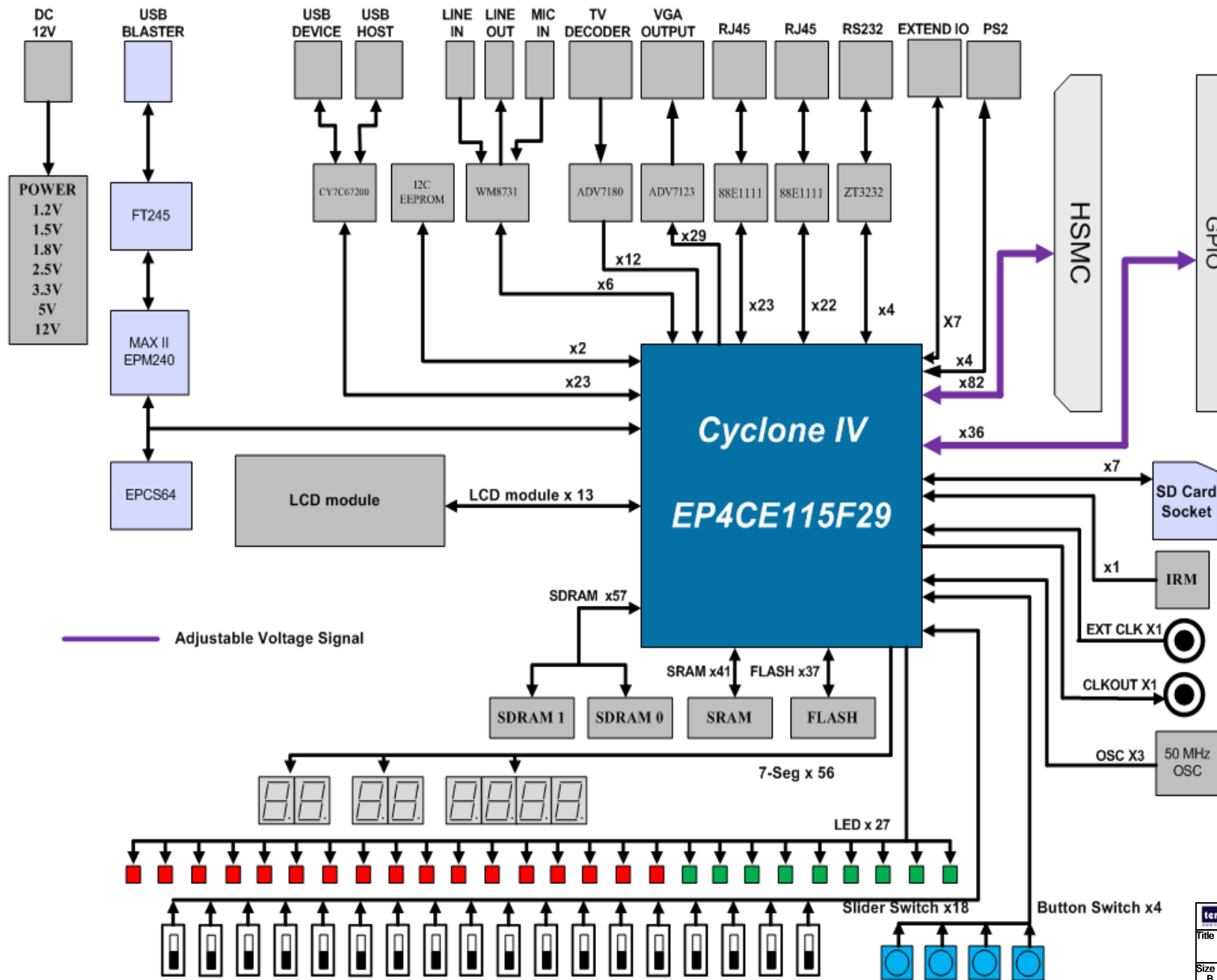
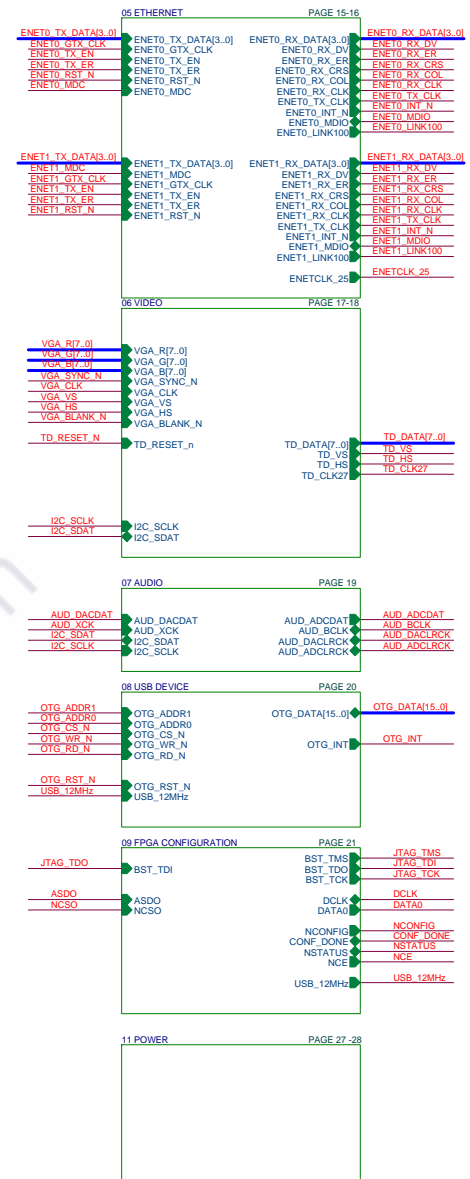
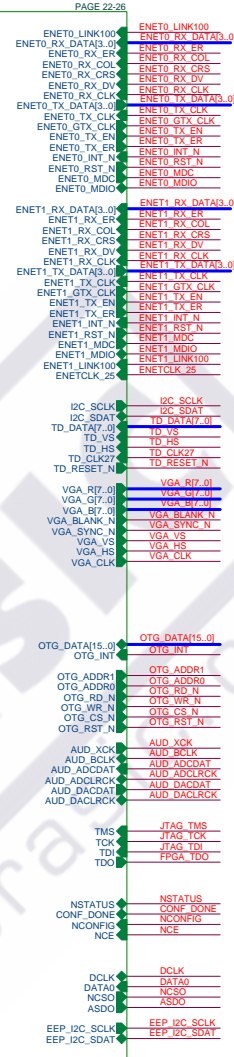
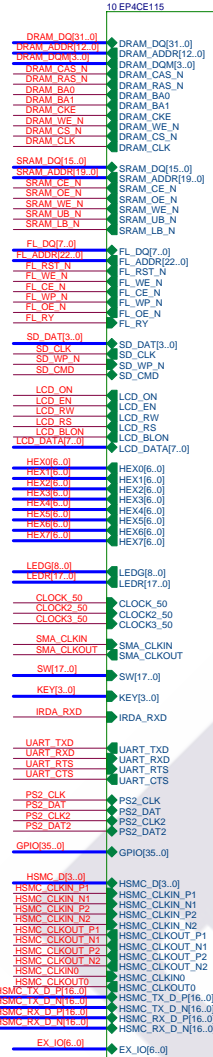
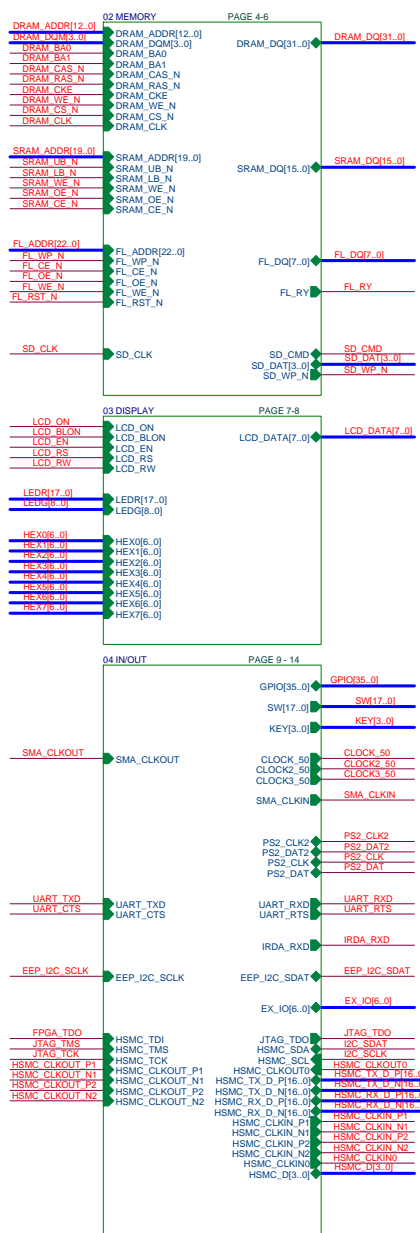


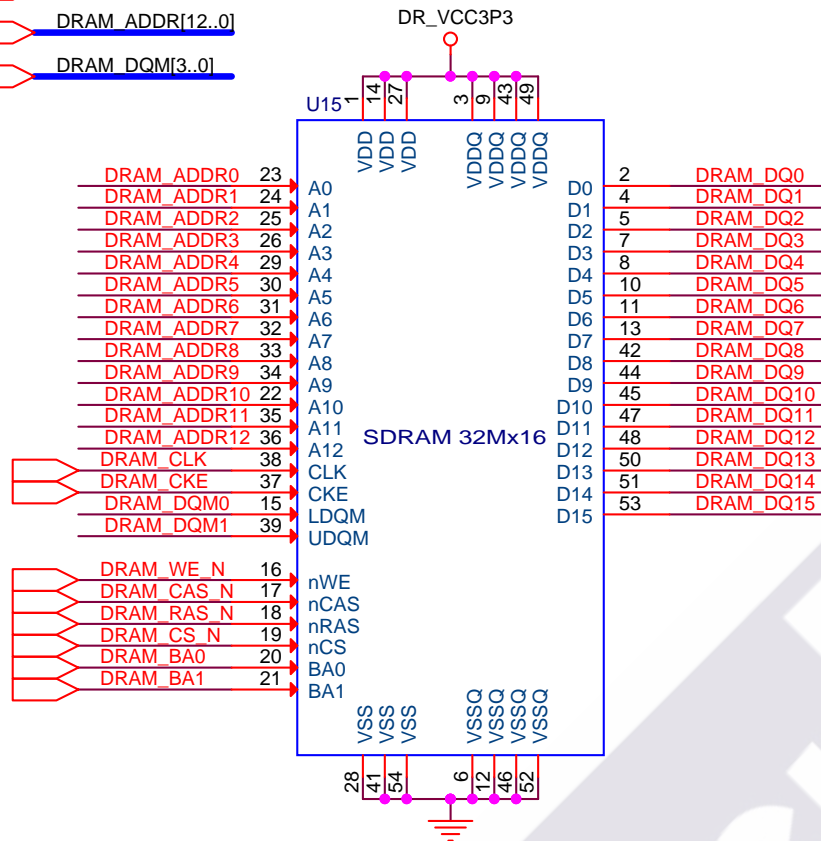
# ALTERA Cyclone IV Development & Education Board (DE2-115)

SCHEMATIC	CONTENT	PAGE
01 TOP	Cover Page, Placement, TOP	01 ~ 03
02 MEMORY	SDRAM , SRAM , FLASH , SD CARD	04 ~ 06
03 DISPLAY	LCD , LED , 7SEGMENT	07 ~ 08
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05 ETHERNET	88E1111	15 ~ 16
06 VIDEO	ADV7123, ADV7180	17 ~ 18
07 AUDIO	WM8731	19
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09 FPGA Configuration	USB Blaster	21
10 FPGA	Cyclone IV EP4CE115 BANK1..BANK8 , POWER , CONFIG	22 ~ 26
11 POWER	POWER 1.2V, 1.8V, 2.5V, 3.3V, 5V	27 ~ 28

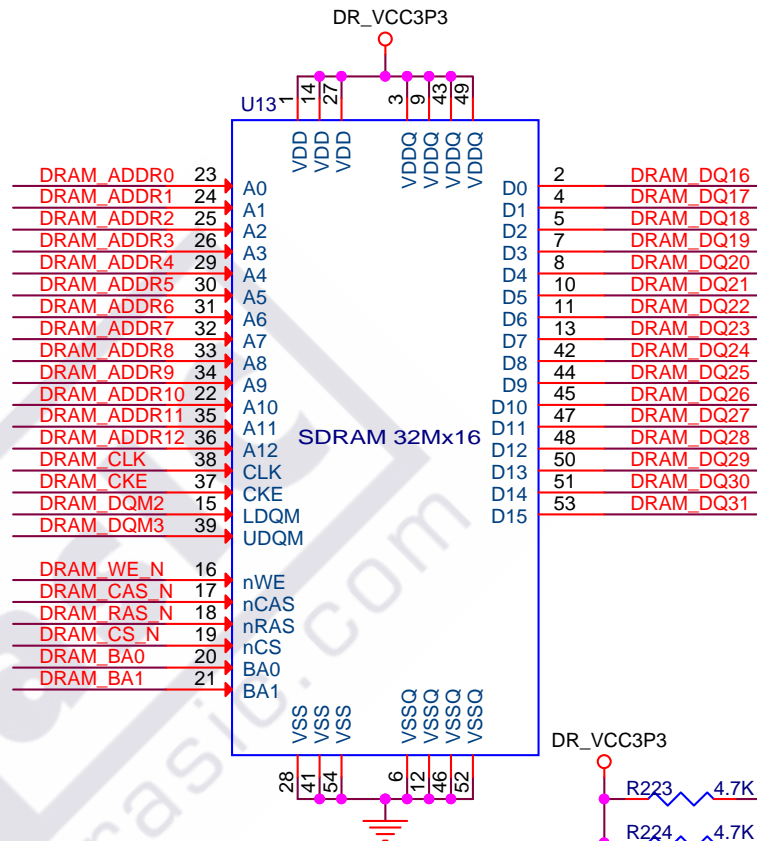




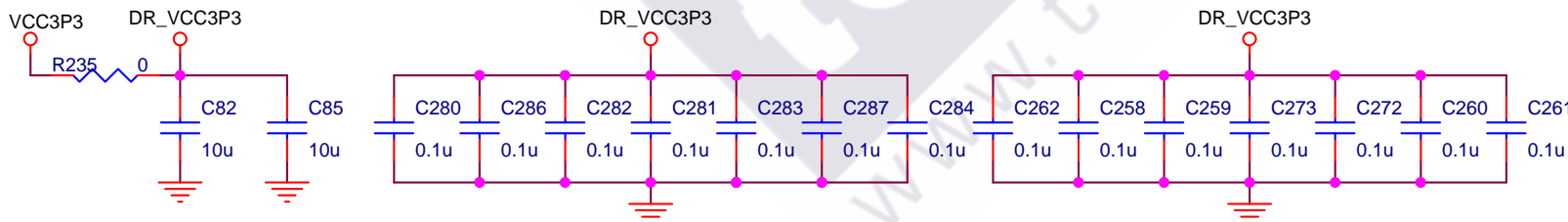
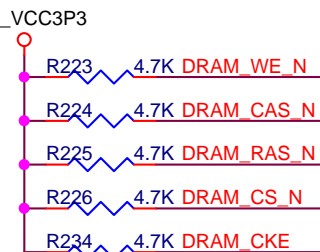
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 DRAM ADDR[12..0]  
 DRAM DQM[3..0]

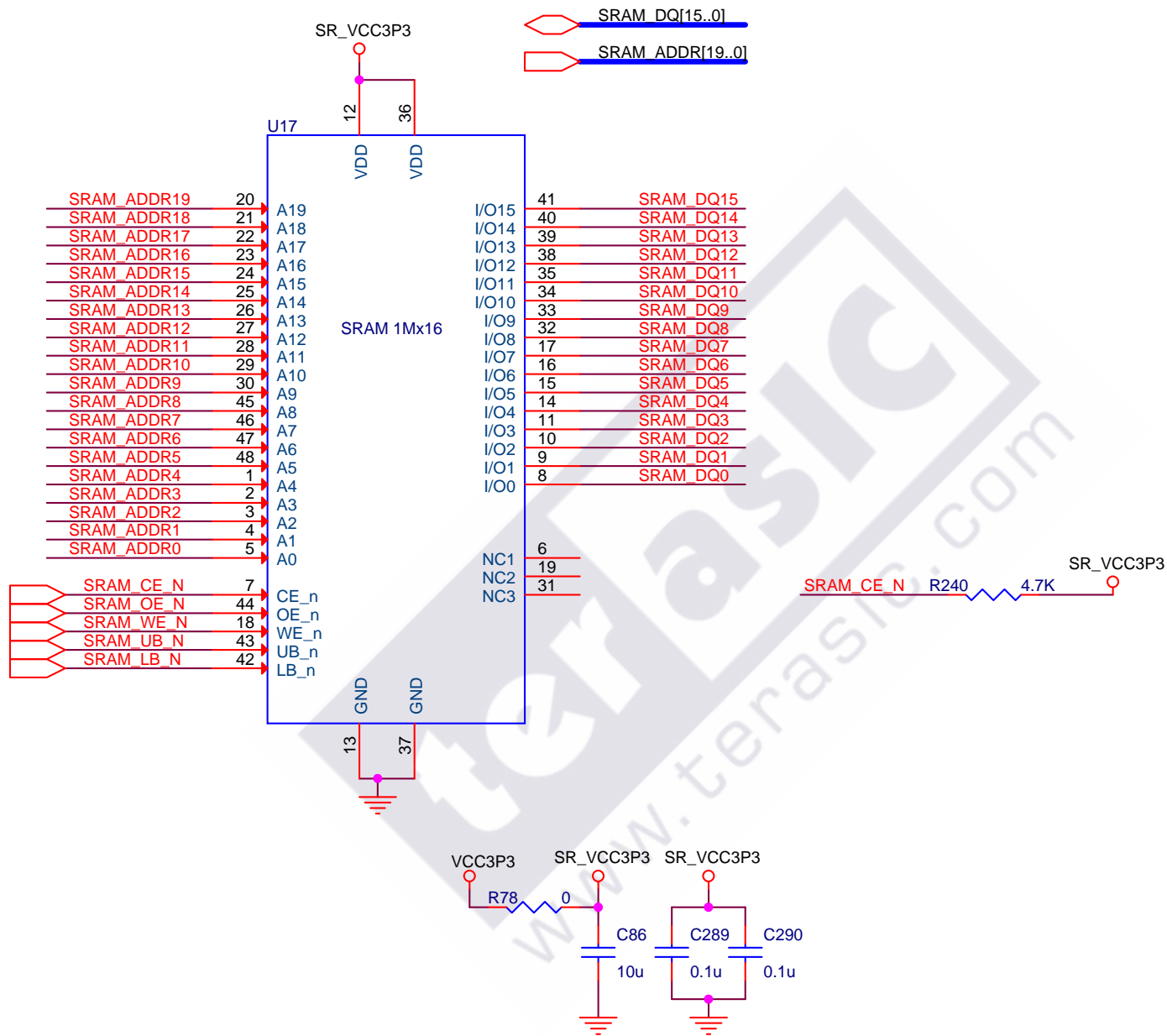


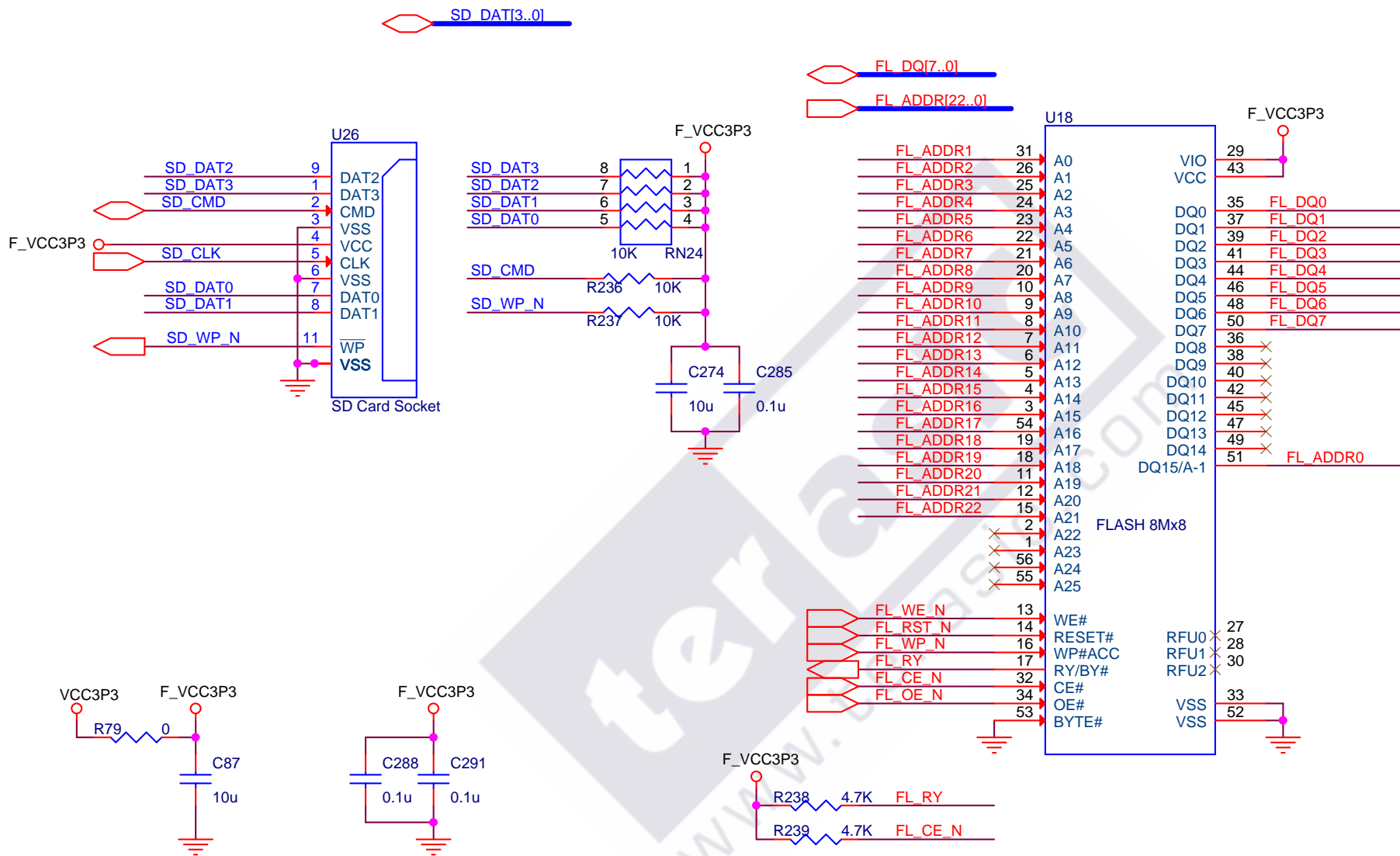
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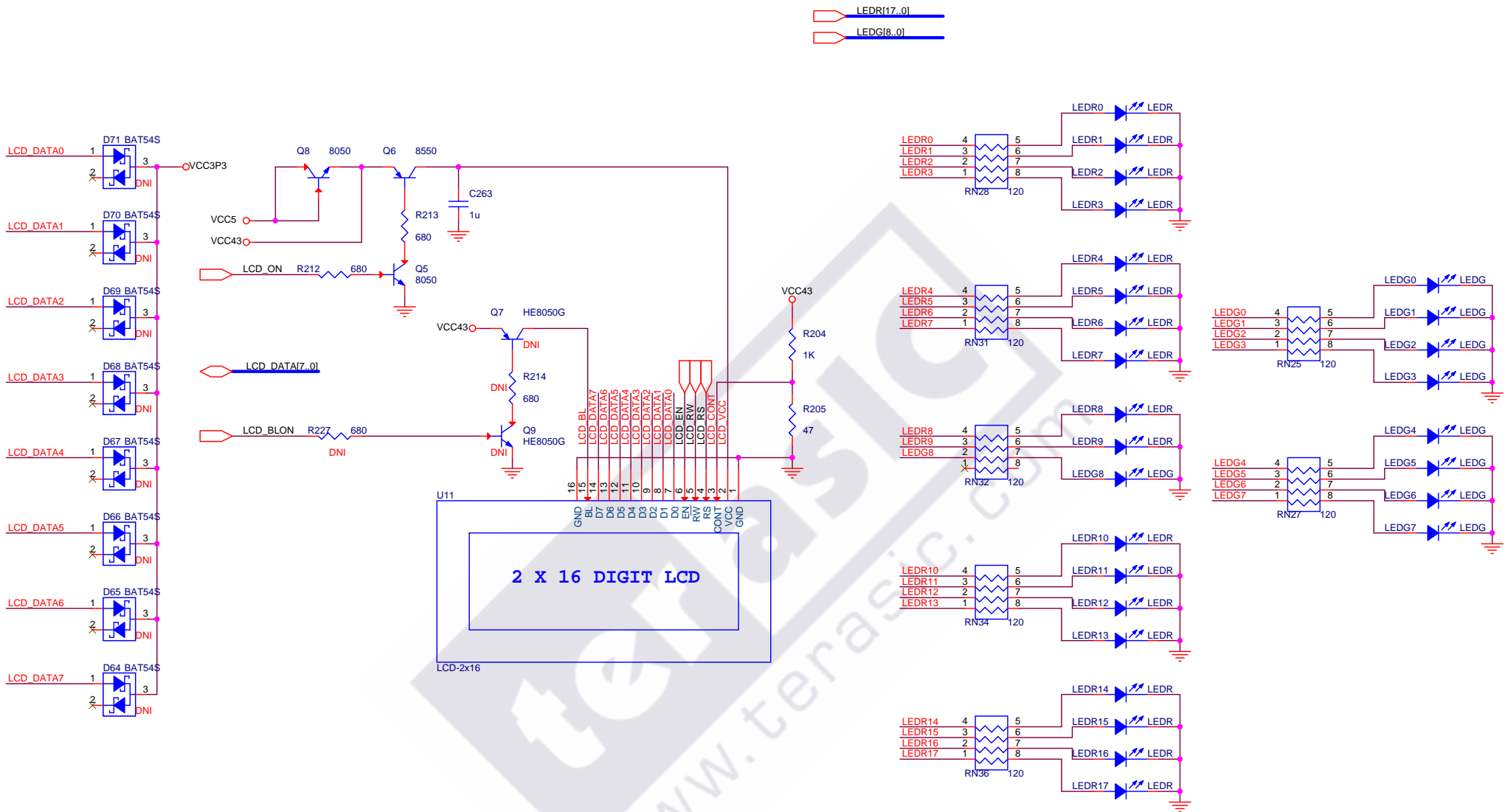



SDRAM1

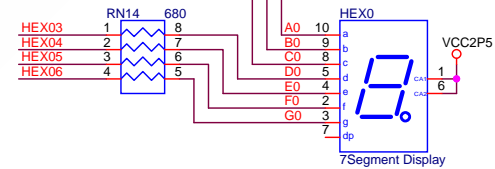
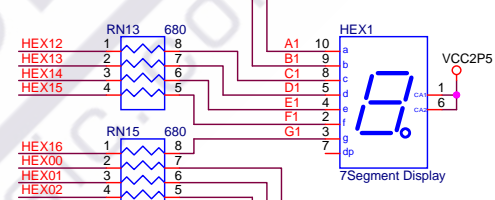
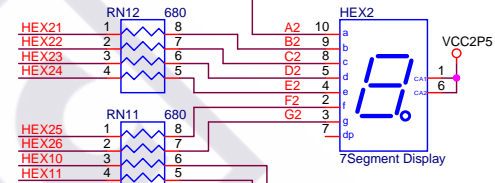
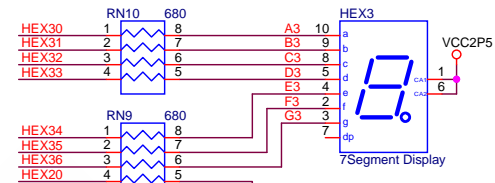
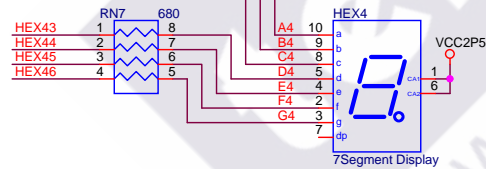
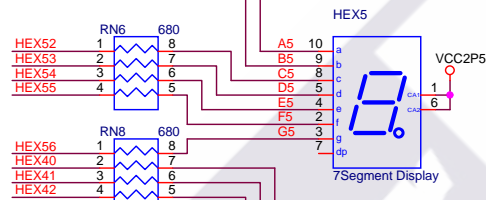
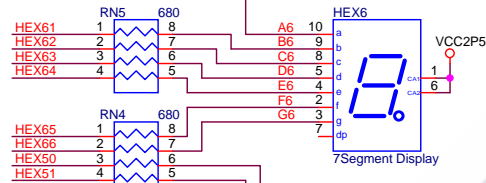
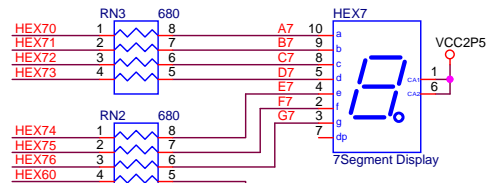
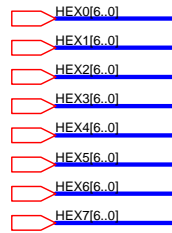




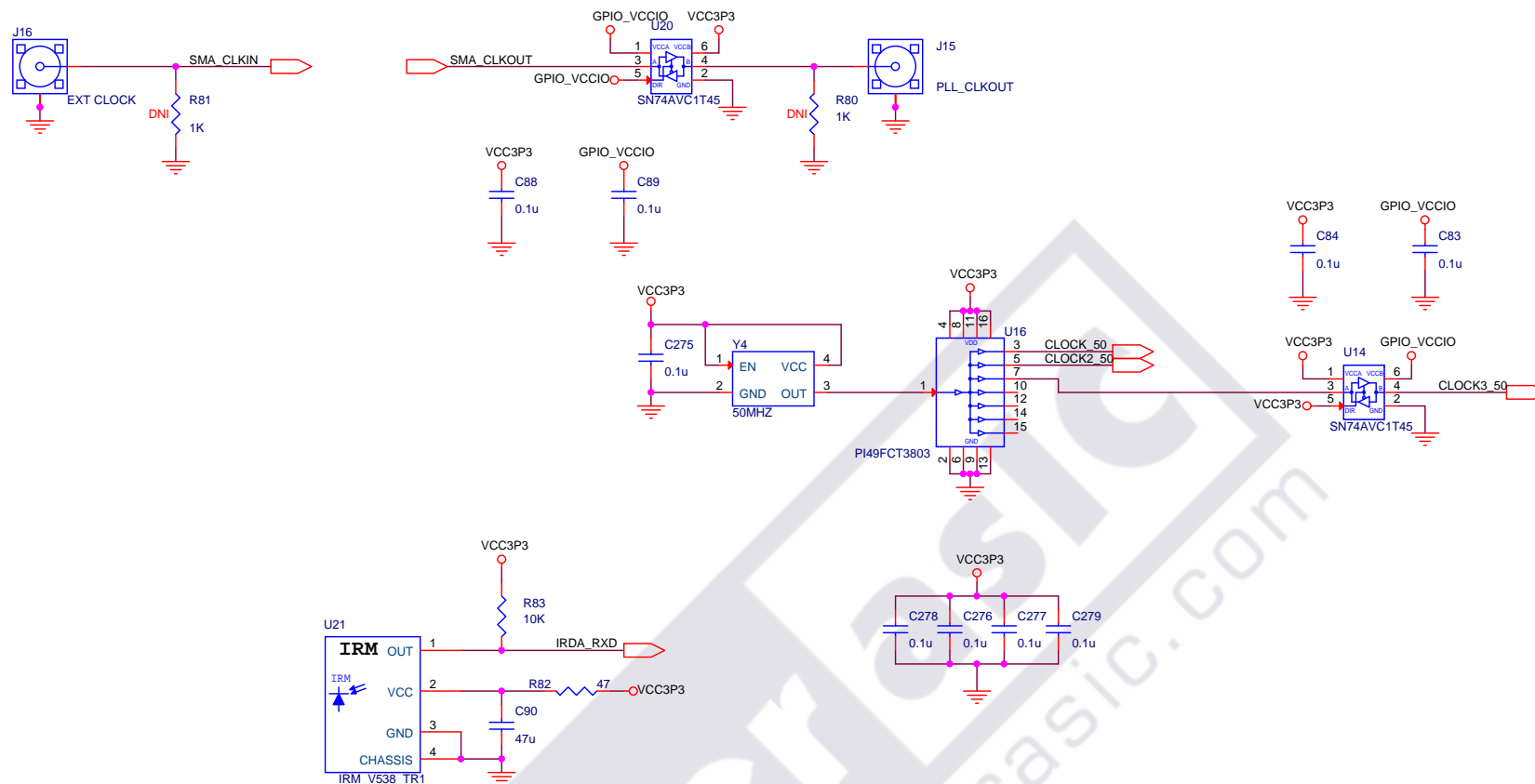


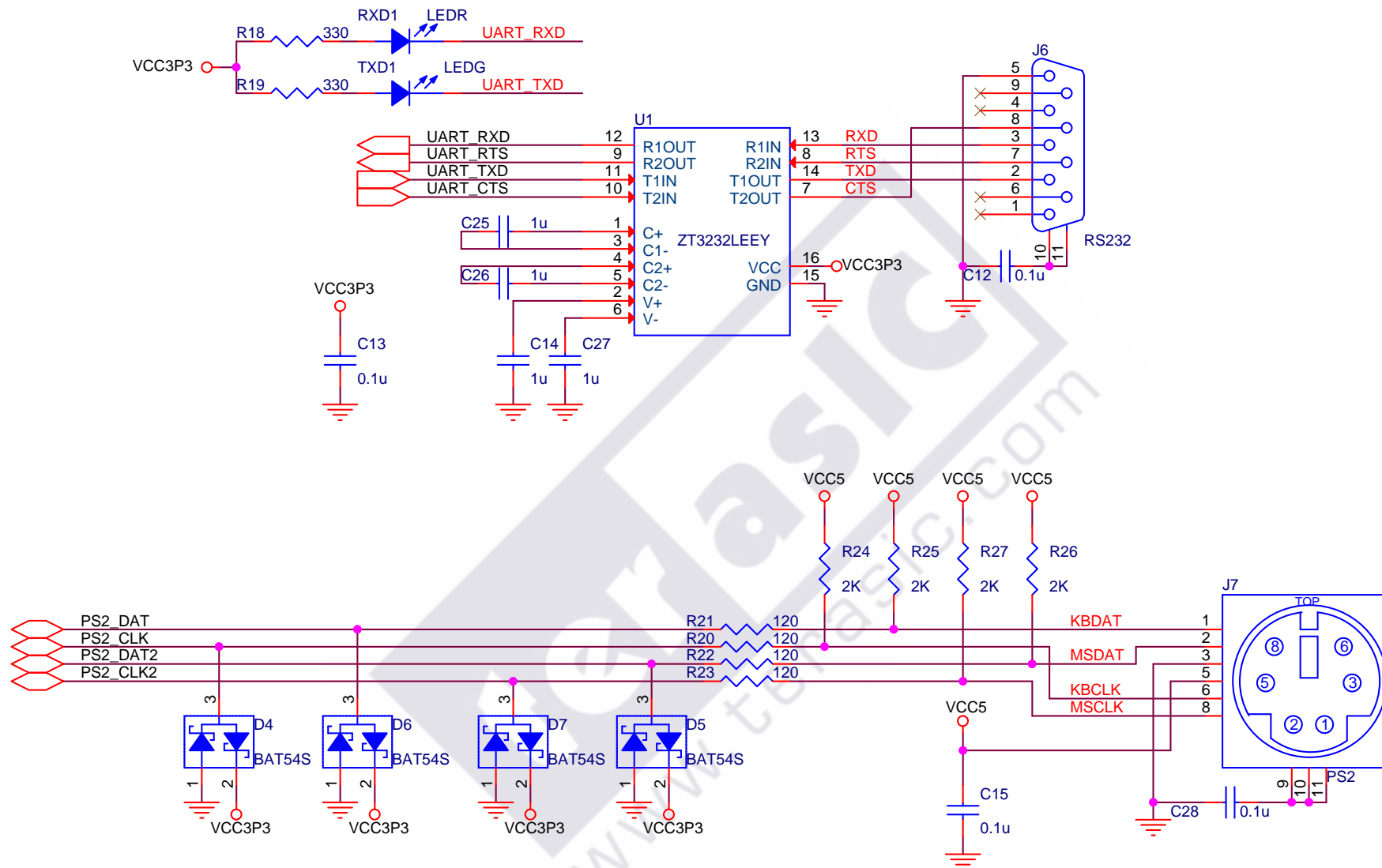


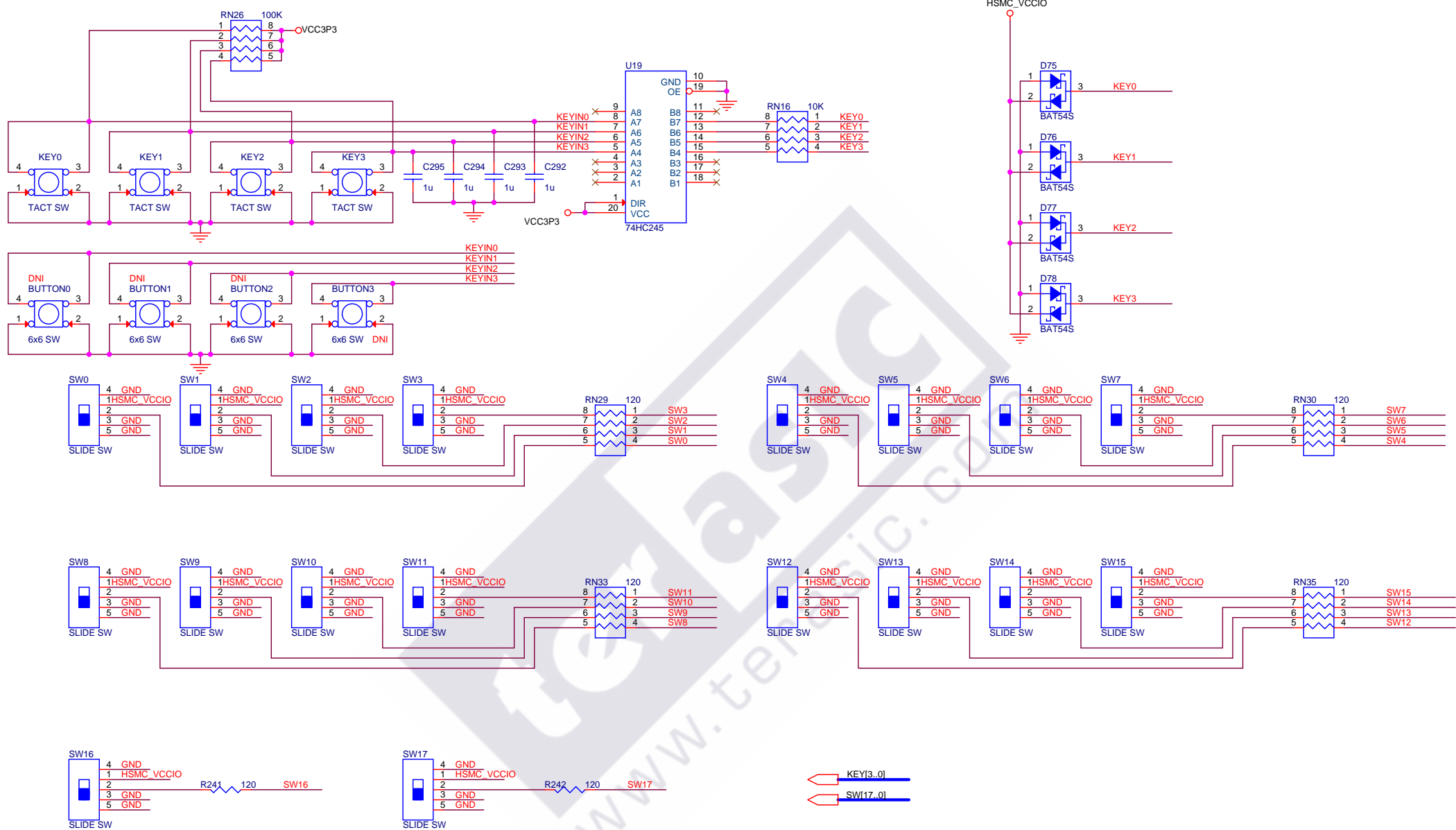
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Title		
DE2-115 Main Board		
Size	Document Number	Rev
B	LCD & LED	D
Date:	Friday, October 05, 2012	Sheet 7 of 28

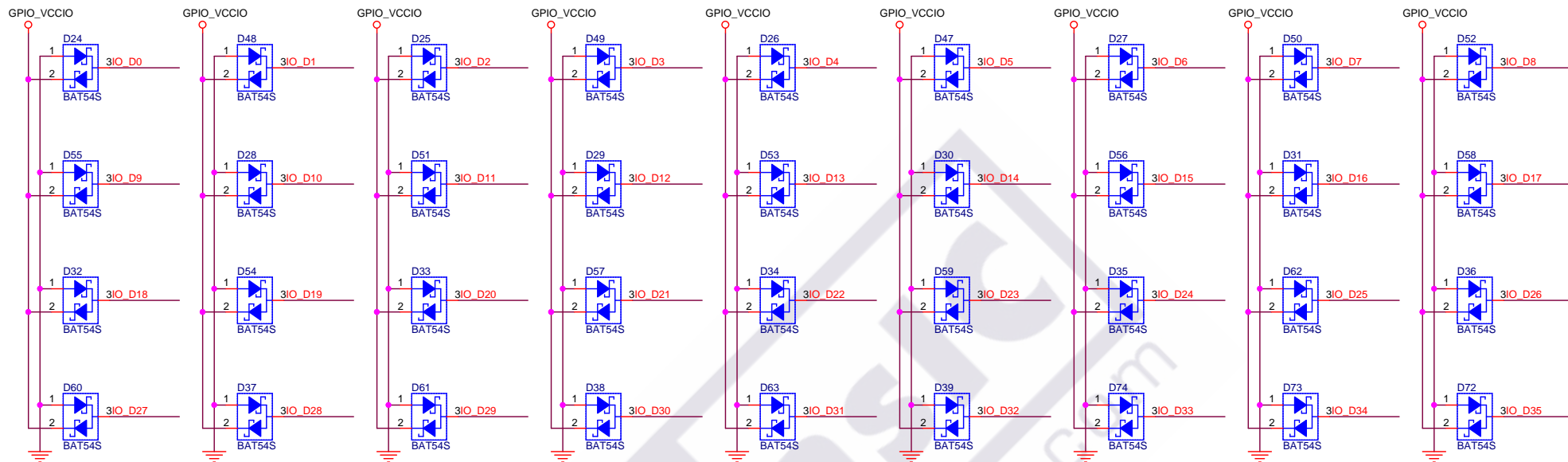




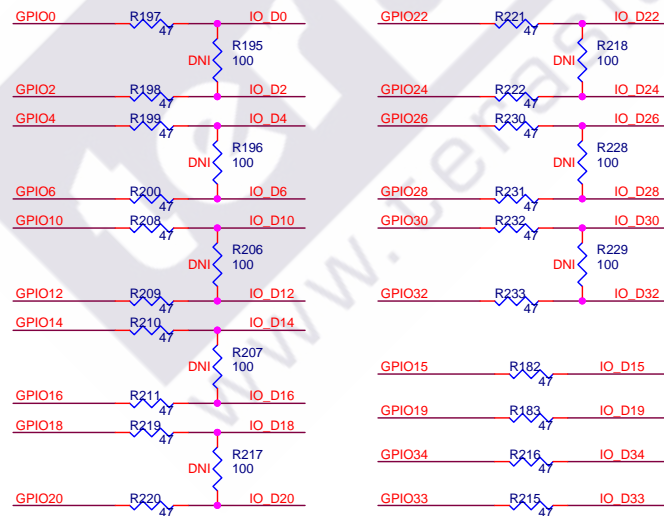
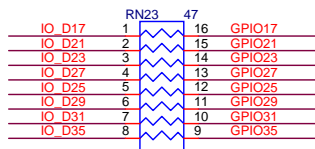
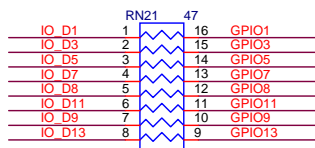




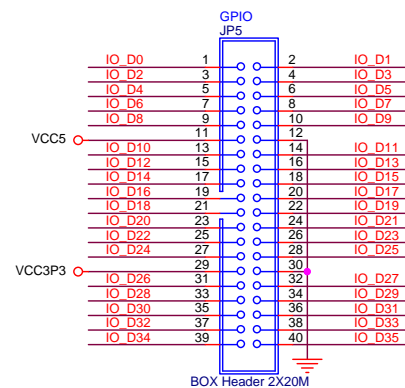


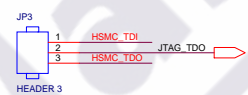
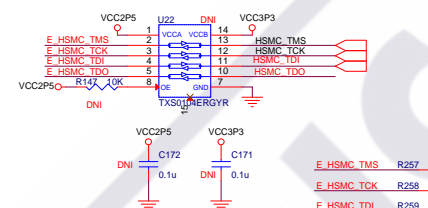
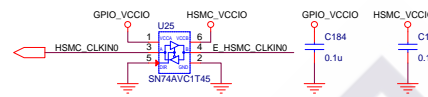
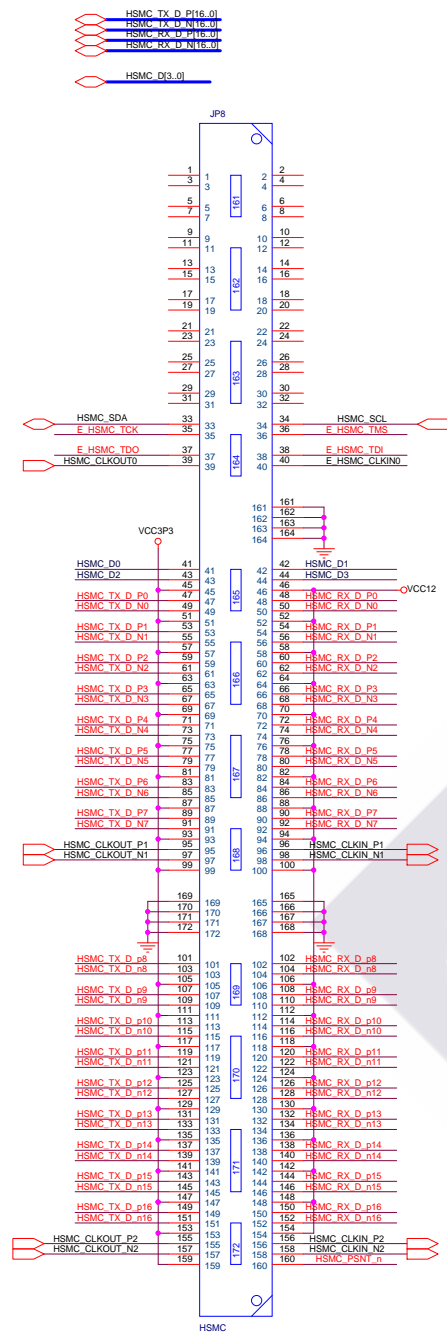


GPIO[35..0]

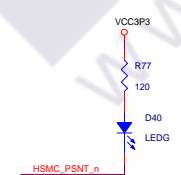
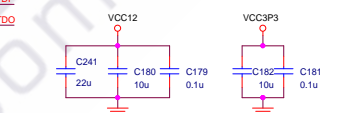
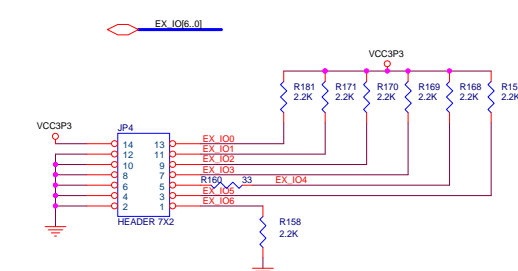


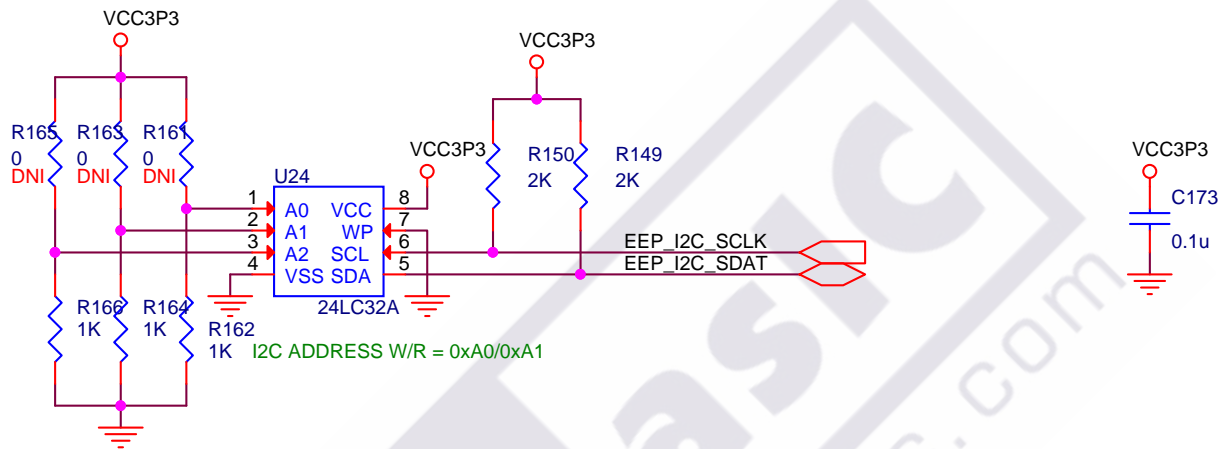
Close to FPGA




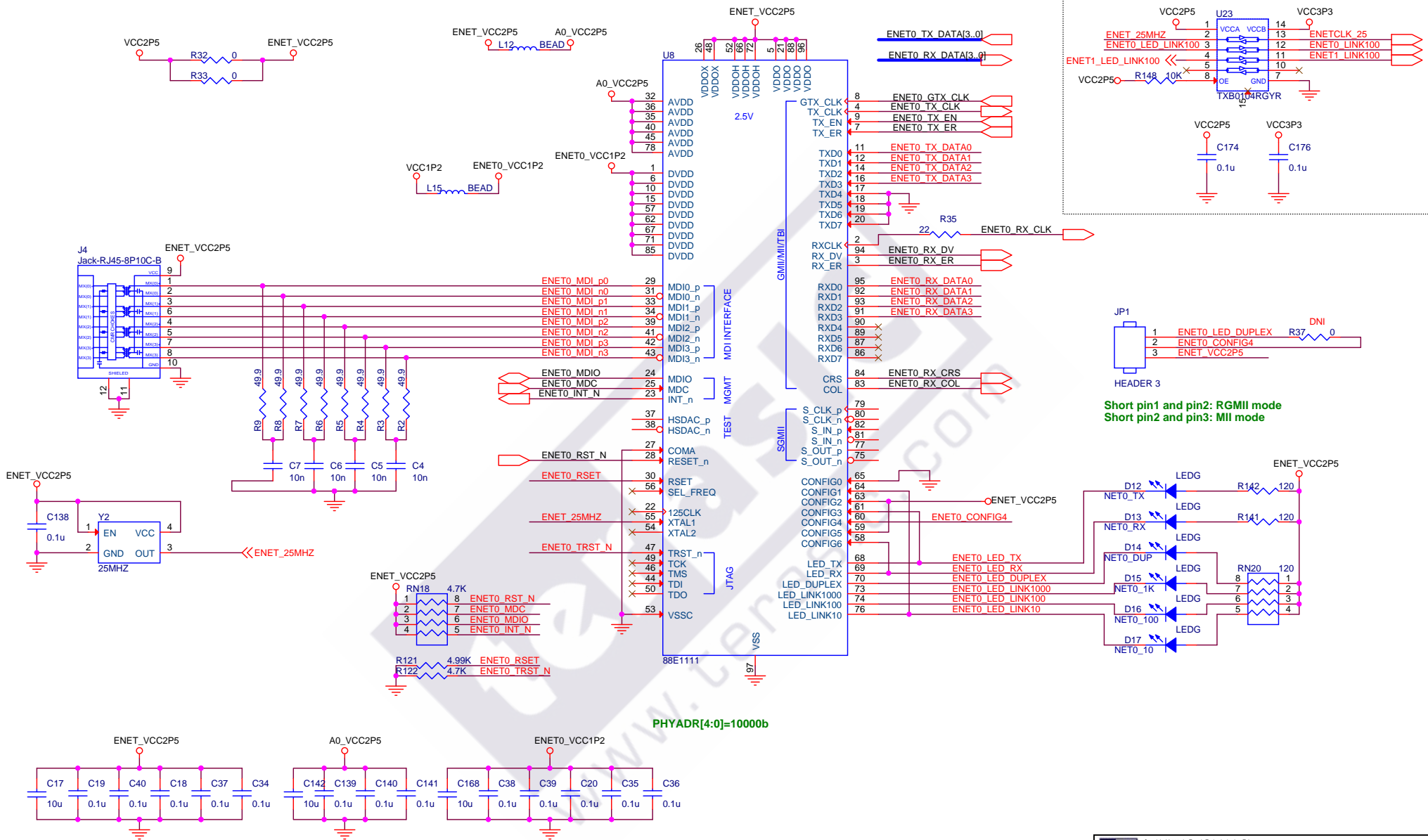


Short pin1 and pin2: JTAG chain not including HSMC  
Short pin2 and pin3: JTAG chain including HSMC



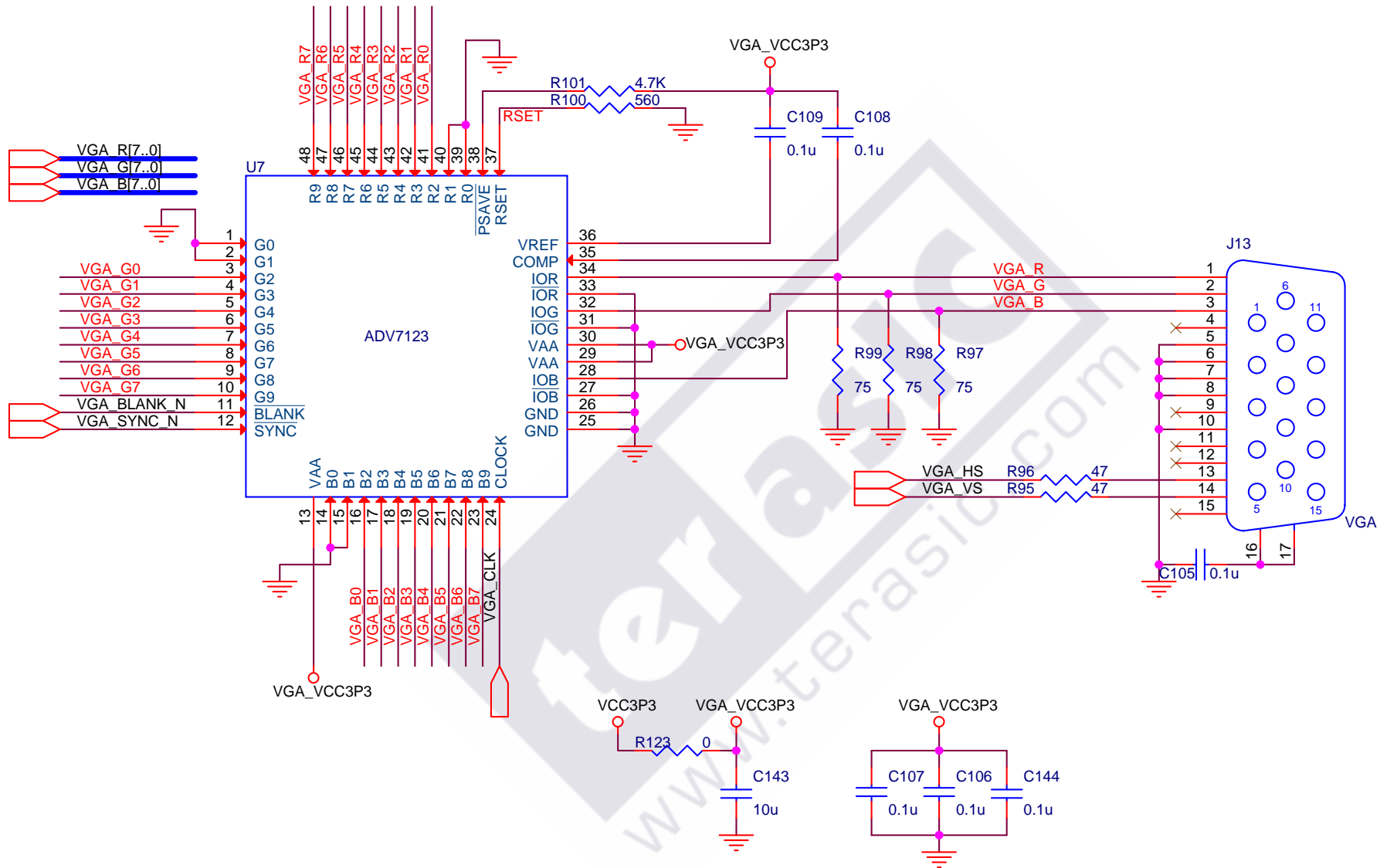


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Title			
DE2-115 Main Board			
Size A	Document Number EEPROM		Rev D
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Title

**DE2-115 Main Board**

Size  
A

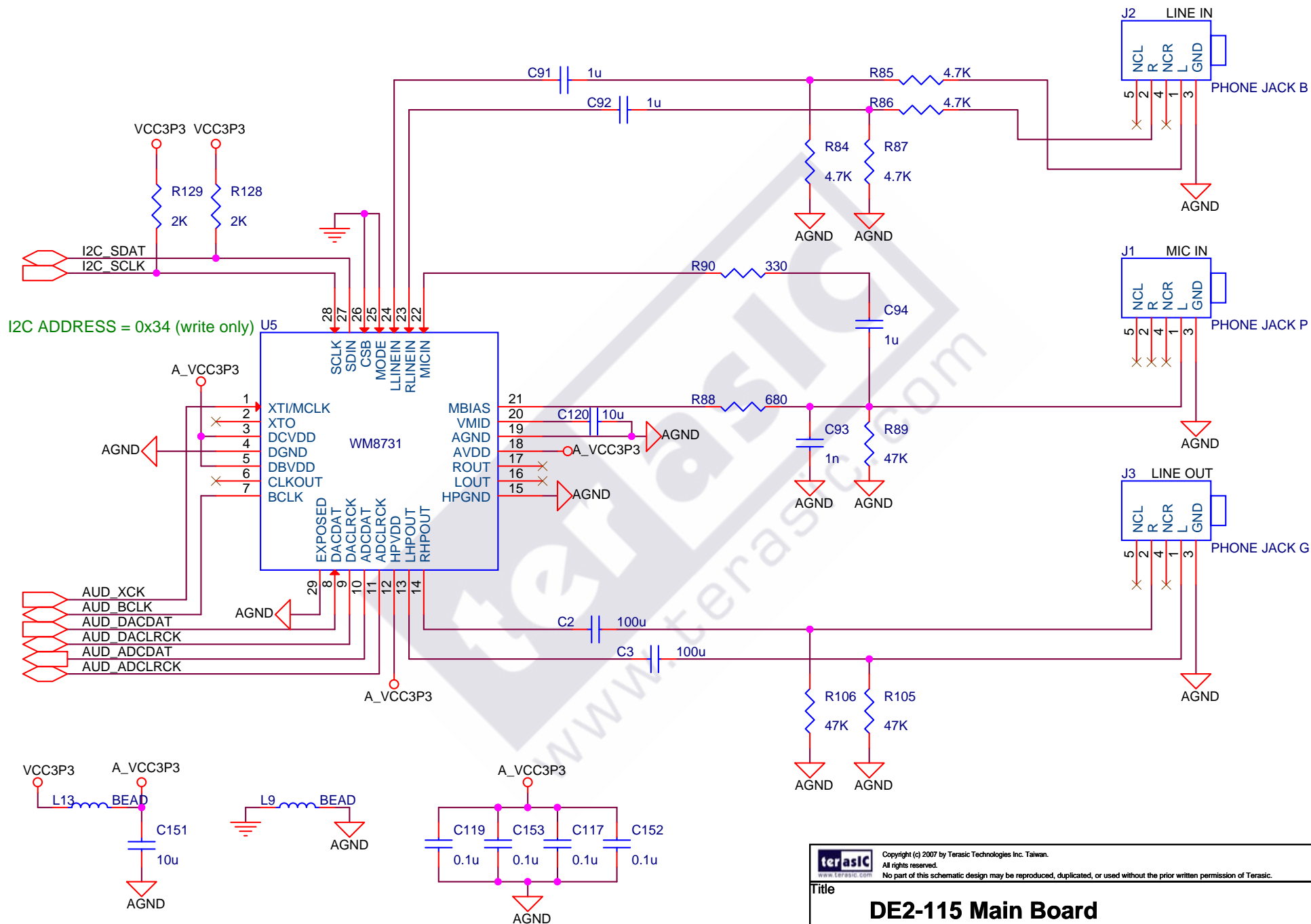
Document Number  
ADV7123 VGA

Rev  
D

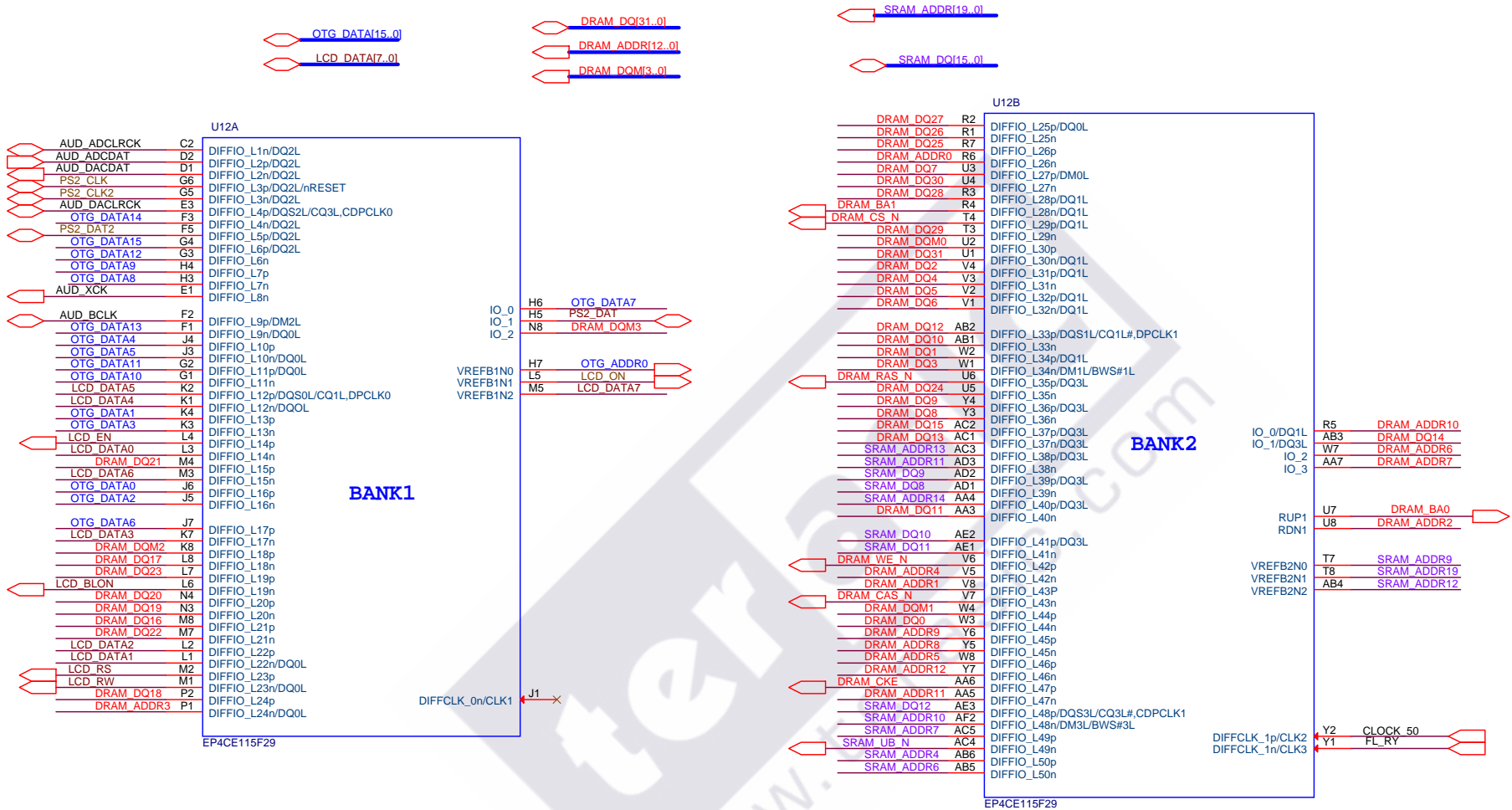
Date: Friday, October 05, 2012

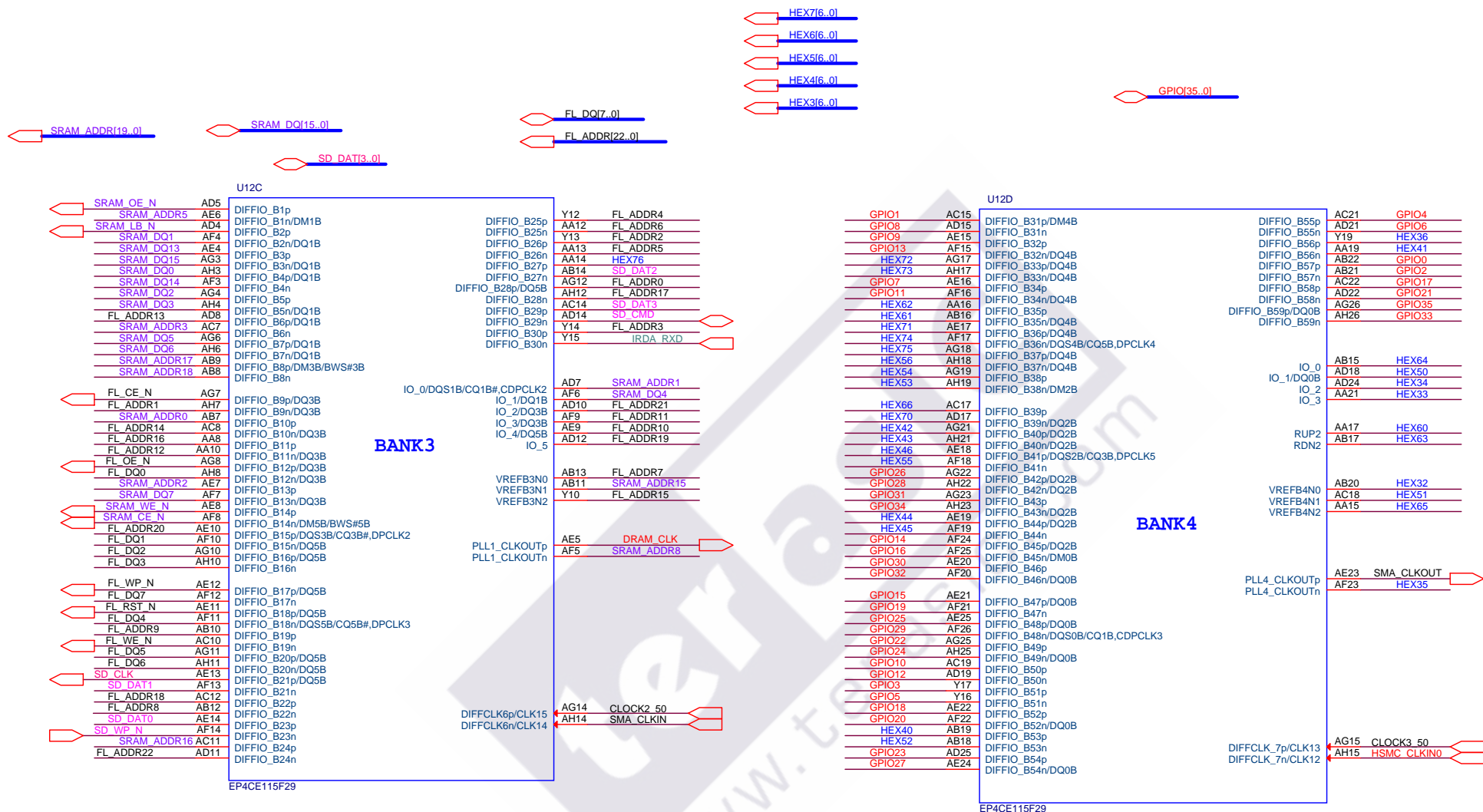
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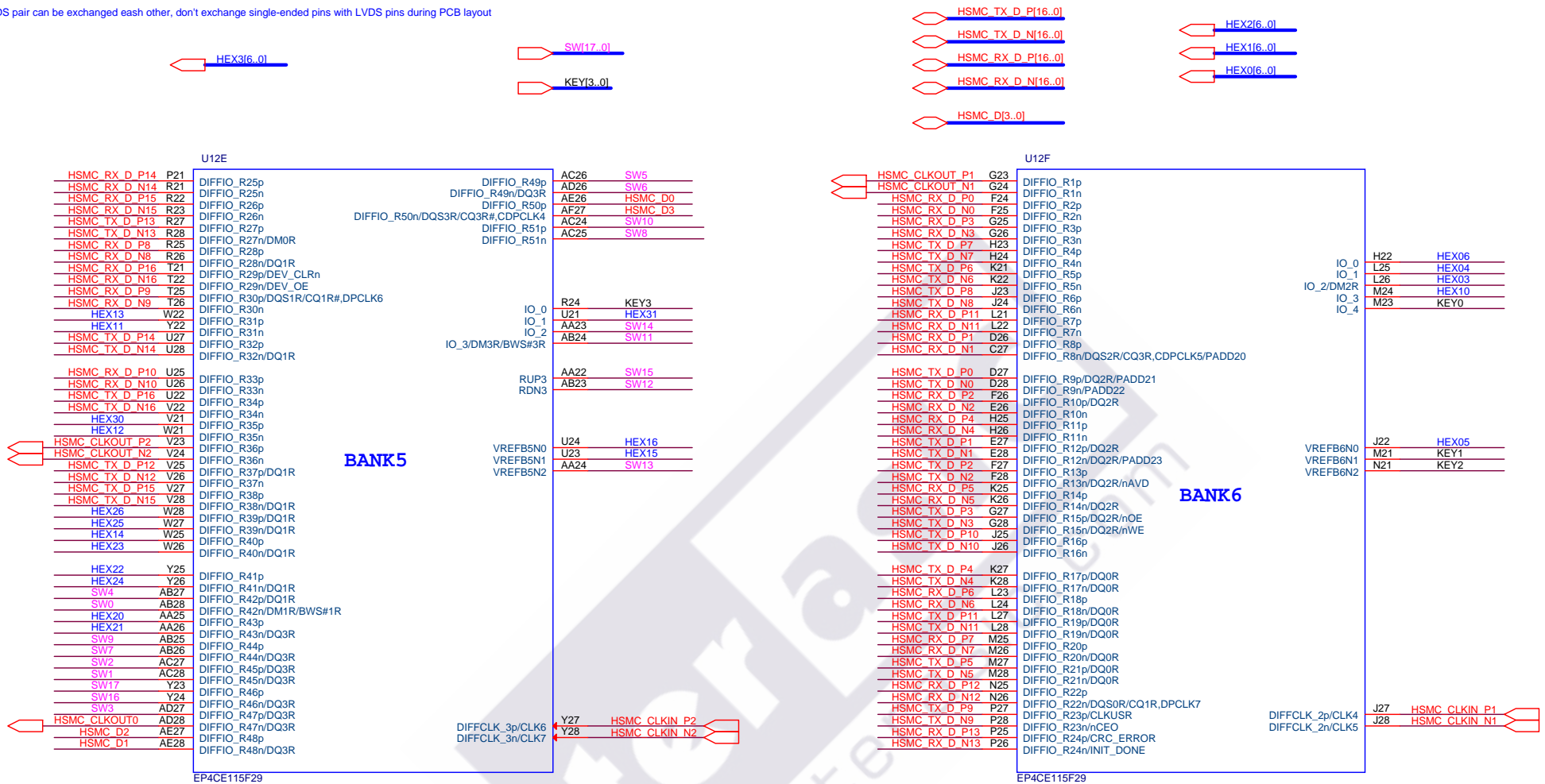






The LVDS pair can be exchanged each other, don't exchange single-ended pins with LVDS pins during PCB layout

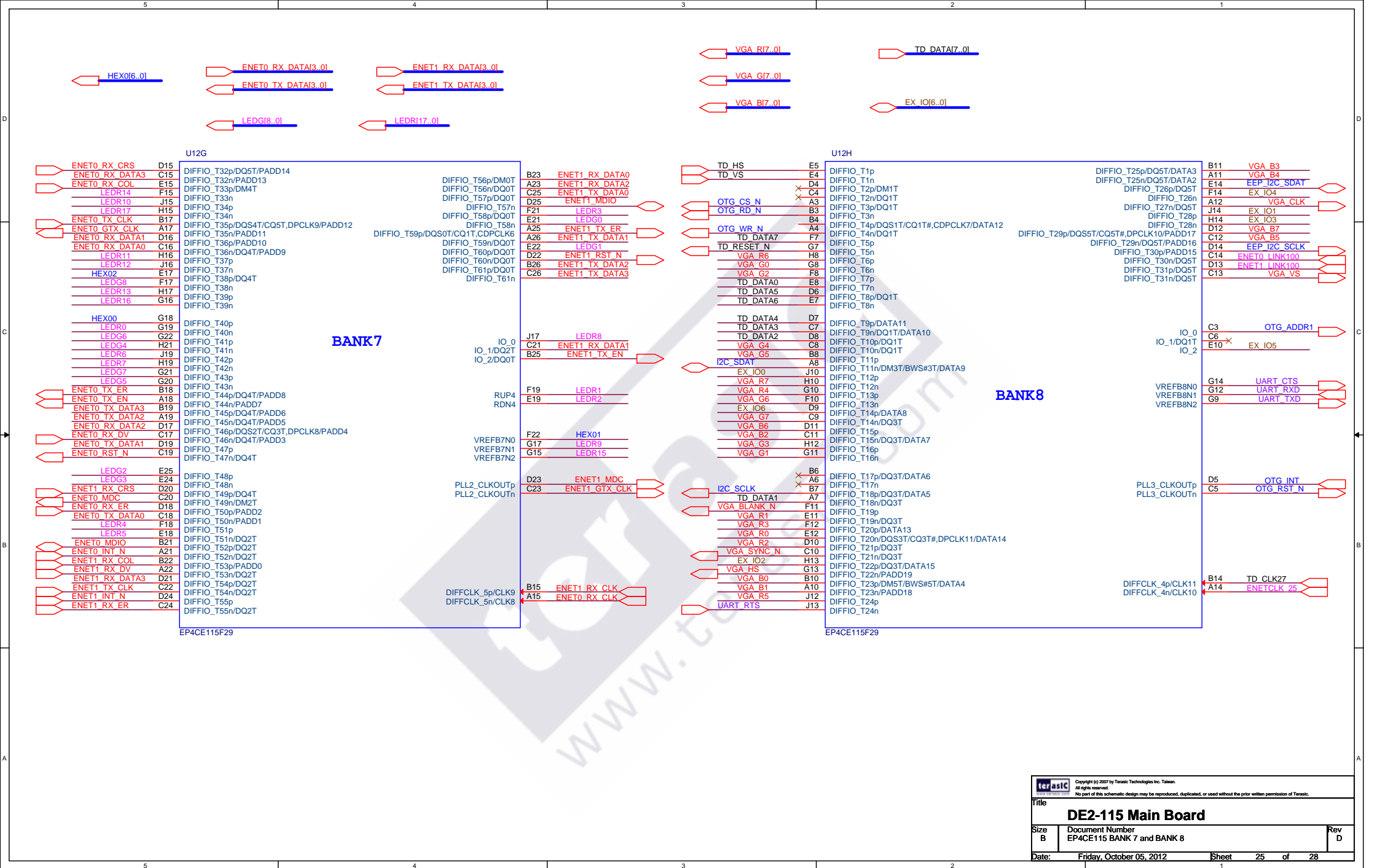
The LVDS pair can be exchanged each other, don't exchange single-ended pins with LVDS pins during PCB layout



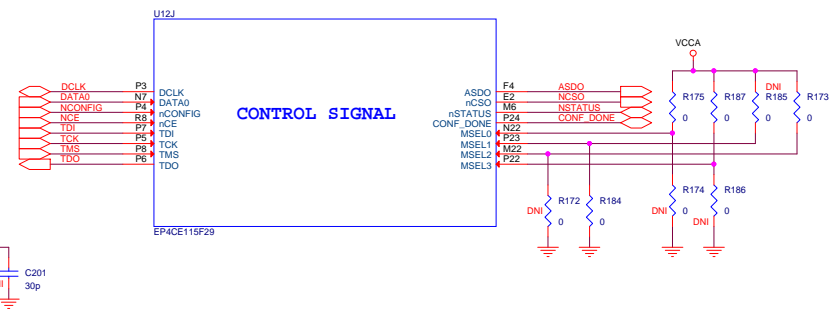
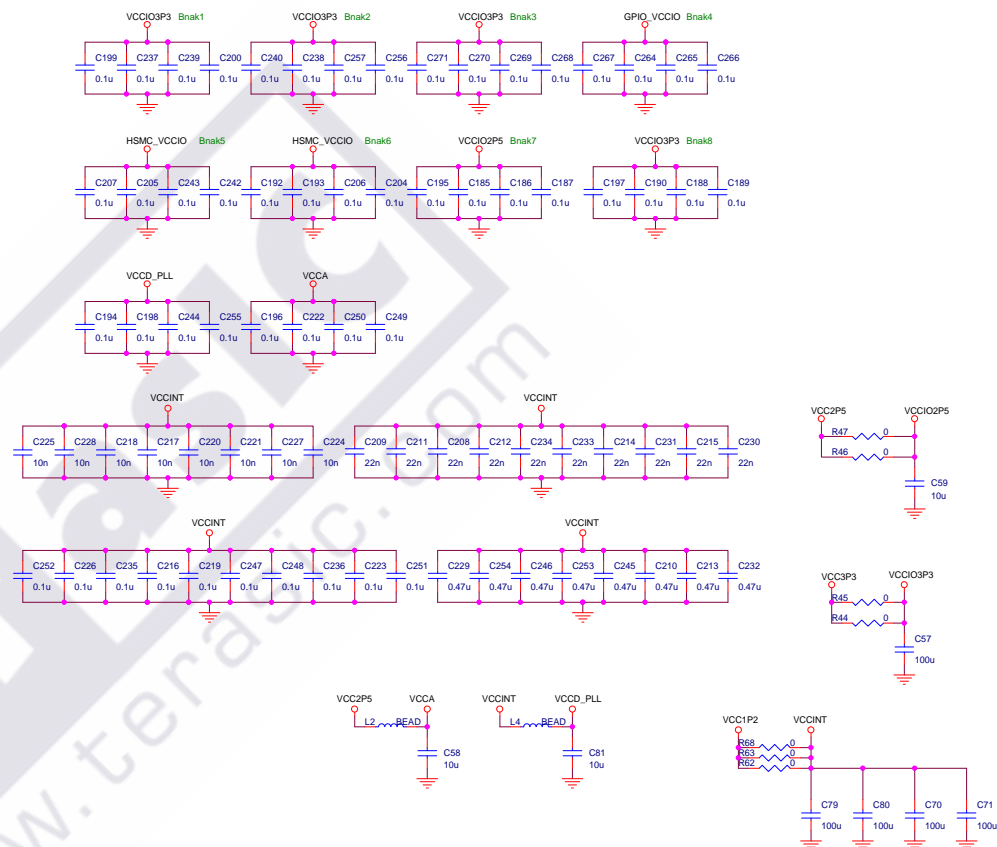
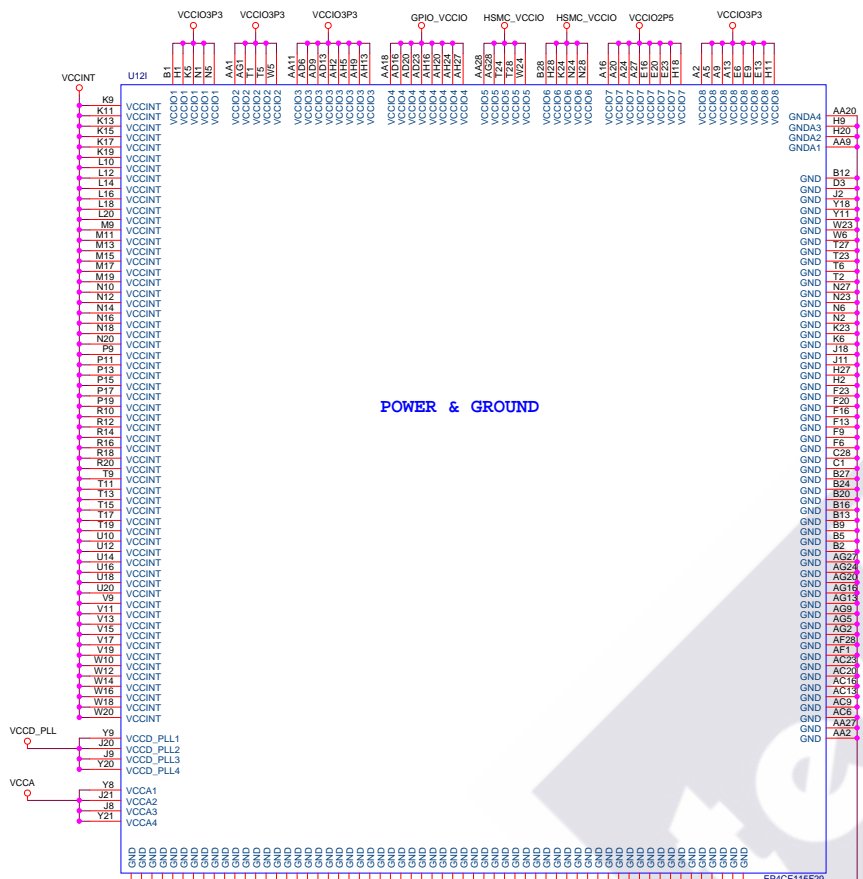
Close to FPGA

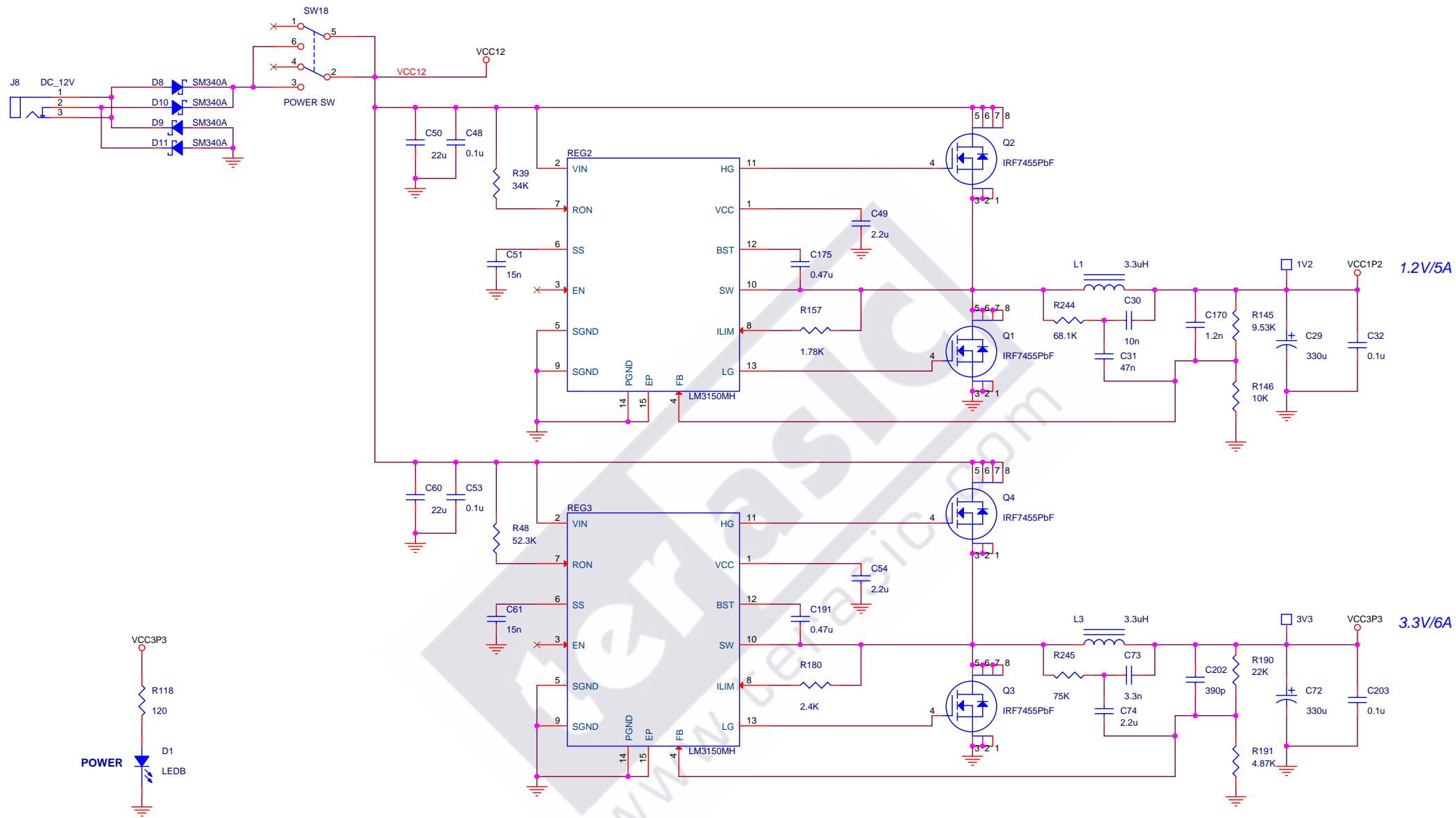
Title		Document Number		Rev	
DE2-115 Main Board		EP4CE115 BANK 5 and BANK 6		D	
Date:		Friday, October 05, 2012		Sheet 24 of 28	



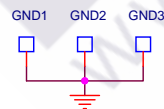
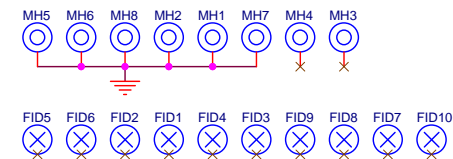
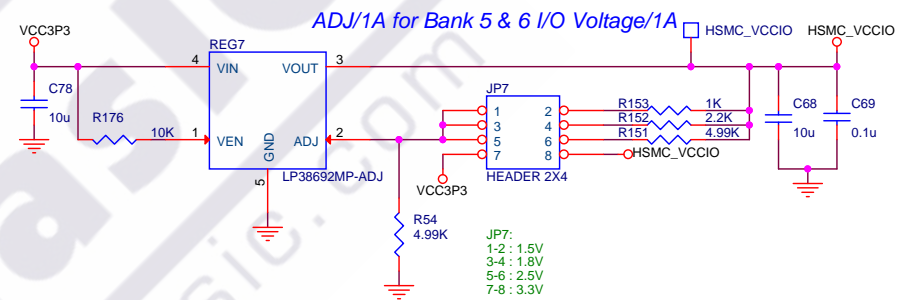
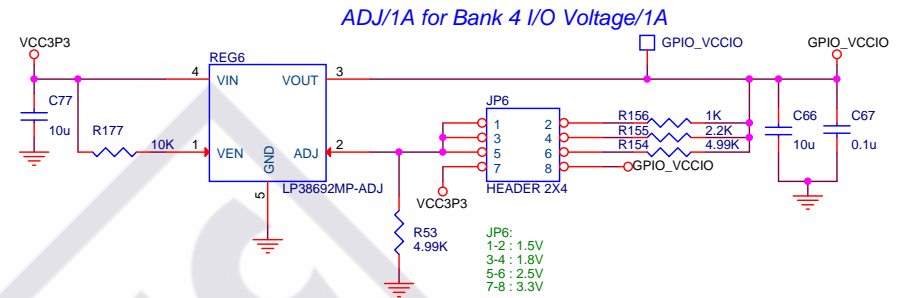
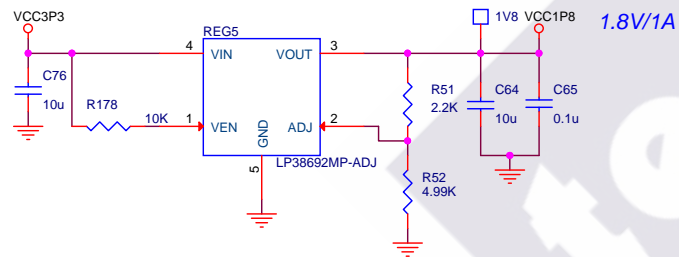
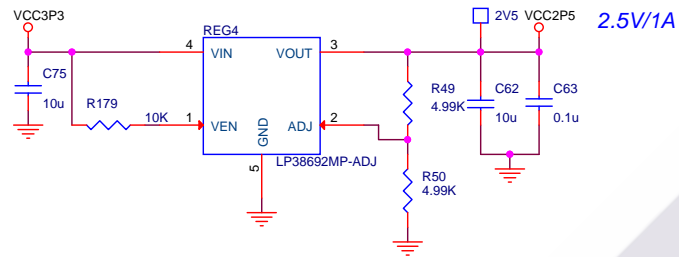
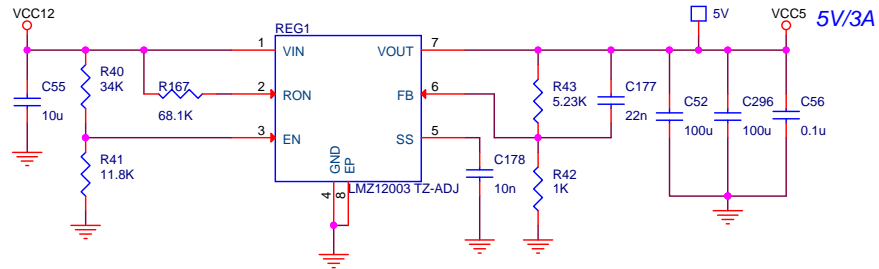








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Title		
DE2-115 Main Board		
Size B	Document Number	Rev D
POWER 1.2V & 3.3V		
Date:	Tuesday, February 19, 2013	Sheet 27 of 28



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Title	
DE2-115 Main Board	
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B	POWER 1.8V & 2.5V & 5V
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Rev	D